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Worldwide Report

EPIDEMIOLOGY

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14 January 1985

**WORLDWIDE REPORT
EPIDEMIOLOGY**

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HAEMORRHAGIC FEVER IN SOUTHERN AFRICA EXAMINED

Marshalltown SOUTH AFRICAN JOURNAL OF SCIENCE in English Oct 84 pp 449-454

[Article by J.H.S. Gear].

[Text]

'Ex Africa semper aliquid novi' is quoted so often that it sounds trite, yet recent occurrences have confirmed that the statement is as true today as when Pliny wrote it about 2000 years ago. Pliny, quoting the Greeks, was referring to the animals, gathered at water-holes in the desert, whose mixing it was surmised gave rise to new and strange hybrids. Today it applies to viruses. In the last two decades several hitherto unrecognized viruses have been identified in Africa south of the Sahara, causing alarming outbreaks of disease manifesting as haemorrhagic fever associated with a high mortality. Because of their potential in this jet age for spread far afield and their danger to the medical and nursing staff caring for the patients with these infections, they have aroused worldwide interest.

However, the first haemorrhagic fever to which attention will be called has been known for centuries. It is yellow fever, the classic example of a haemorrhagic fever.

Since time immemorial, Tropical Africa has been notorious for the lethal diseases which afflicted those who ventured into the interior. Although there are clear records of conditions prevailing, and indeed of the diseases prevalent in Ancient Egypt and in the other countries of the Mediterranean and Middle East, little was known in ancient times of the topography or of the inhabitants of Tropical Africa.

The early Portuguese sailors, as they groped their way southwards seeking the sea route to India, followed in turn by the Dutch and the English, soon became aware of the lethal diseases which afflicted the crews of ships which entered the ports of West Africa or even anchored off-shore. One became especially notorious for its ravages — yellow fever.

Yellow fever — yellow jack — was greatly feared by the sailors of these ships, for they knew that once the infection broke out on board, it was likely to affect most of the crew and about one quarter of them would die. On occasion it would sweep up the Atlantic coast of America claiming thousands of victims. It also often decimated the British and French army garrisons on the islands of the Caribbean sea.

One of the most vivid accounts of its ravages is to be found in the

autobiography of Sir Harry Smith, one of the most colourful characters in South African history, and his meeting with the girl who became his wife after the battle of Badajoz is one of the world's great love stories.

After describing his voyage from Halifax, Canada, to Jamaica to assume his appointment as Quarter-Master-General, he wrote:

Soon after we landed, the crew, all but one man an old German carpenter, died of yellow fever and in the harbour commenced one of those awful visitations to the island which sweep off hundreds. . .

The seeds as usual in its visitations had first germinated amongst the shipping. The disease spread to our troops to an appalling extent. In six weeks we buried 22 officers and 668 soldiers. I resolved to move the 84th from Fort Augustus to a bivouac at Stony Hill. The day before, the Regiment was in a perfect state of despondency but I cheered them up, I told them whether a soldier died by yellow fever or on the battlefield it was all in the service of his country, that I should move them to a healthy spot the next day where they would leave the yellow fever behind, and now three cheers for His Majesty.

The poor 22nd Regiment suffered equally with the 84th — the Colonel, the Major, the Paymaster and five officers died in a few days. The Adjutant's Room next to the Orderly Room possessed the mortal seeds of yellow fever. Everyone who sat to write in the room was knocked down and died in a few days, in consequence I prohibited the use of it. Major Stewart, a most excellent officer, though not obedient in this instance, treated the prohibition slightly, wrote there two days, on the fifth day he was buried.

His camp in the hills of Jamaica still stands as a monument to the intuitive wisdom of this great soldier. Subsequently, he had a vital role to play in the history of South Africa and in particular of the Eastern Province and its inland centre of Grahamstown.

For a solution to the problem of yellow fever, we turn from the British army to the American army. At the turn of this century in the campaign in Cuba during the Spanish-American war, the American expeditionary force suffered so severely that a commission was appointed under Major Walter Reed and sent to Cuba to investigate the disease.

In their classic studies, using human volunteers of whom one Dr Lazear died, the Commission proved that yellow fever was caused by an ultramicroscopic-filter-passing agent, the first virus to be incriminated as a cause of human disease, and that the infection was transmitted by a mosquito, *Stegomyia fasciata* now called *Aedes aegypti*, and that after its infecting feed, 12 days elapsed before the mosquito was infective.

These findings immediately made clear the reasons for the prevalence of yellow fever in the seaports of the tropics, along the low lying coastal areas and even in Colonel Harry Smith's adjutant's room. They also had the most important practical implications — if the mosquito were eliminated, yellow fever would disappear.

Major W. C. Gorgas, assigned the task of eradicating yellow fever from Cuba, set about it thoroughly by eliminating the breeding places of the *Aedes* mosquito in rainwater cisterns, in water in discarded tins and other man-made collections of water. His campaign was a brilliant success. There have been no outbreaks of yellow fever in Cuba since that time. He then successfully applied the lessons learned in Havana to protect the labour force completing the Panama Canal, whose construction had been abandoned by the French because of the prevalence of yellow fever and malaria.

The Rockefeller Foundation, through its International Health Division as one of its missions, undertook to eradicate yellow fever from the western hemisphere by eliminating the seed beds of disease in the great urban centres. For several years it seemed that their mission had been successful, then it was found that workers in the forests of Brazil were dying of yellow fever. Further investigation revealed the infection occurred in the forest monkeys and was transmitted amongst them in the absence of *Aedes aegypti* by forest mosquitoes.

In Africa, studies, at the Yellow Fever Research Institute set up jointly by the Rockefeller Foundation and the British Colonial Medical Service in the Old Sleeping Sickness Laboratory at Entebbe in Uganda, revealed again that yellow fever was an infection of forest animals, chiefly monkeys, and was spread amongst them by forest mosquitoes and only incidentally and almost accidentally involved man.

Thus it became apparent that yellow fever was endemic in the jungles of Tropical Africa and Tropical America. For the time being at least there was no hope of eradicating the infection. Fortunately, at the time this became apparent, the efforts of the team under Dr Max Theiler, a South African, in the laboratories of the International Health Division of the Rockefeller Foundation in New York, to develop a protective vaccine were crowned with success.

A fully virulent virus, the Asibi strain, was attenuated by serial passage in cultures of chicken cells in glass flasks. When tested in monkeys after 89 passages and then in human volunteers after 200 passages, it produced no or only mild feverish illness, but subsequently the inoculated individuals were immune.

This attenuated virus, known by its laboratory number as the 17D strain, is one of the safest and most effective vaccines so far produced and fully protects over 90% of those inoculated. It has been widely used to protect individuals travelling through and communities living in the endemic regions of America and Africa. These have been accurately defined by the application of a mouse protection test which detects yellow fever serum antibodies. Their presence indicates previous infection with yellow fever, for a man's past history of infection is clearly imprinted on his blood and by the appropriate tests can be revealed. In Africa, yellow fever remains endemic in a broad band across the continent, including the tropical region north of the equator and south of the Sahara, and in the south including Angola, Zambia and Tanzania.

In 1971, for the first time in living memory, a sharp outbreak occurred in Luanda and its environs. The infection was spread by *Aedes aegypti*, the classical urban mosquito transmitter. The epidemic was speedily brought to an end by eliminating the breeding places of the mosquito, mainly in old motor car tyres and discarded tins and by mass vaccination of the population.

Yellow fever has not been identified in the countries south of the Zambezi and Cunene rivers. However, the mosquito *Aedes aegypti* occurs in several areas in this region, especially along the eastern coast. Hence the strict measures at the airports of South Africa to prevent its introduction.

Although yellow fever does not occur here, in the past thirty years over thirty arthropod-borne viruses have been identified as occurring in South Africa in studies carried out in the Arbor-Virus Unit of the Poliomyelitis Research Foundation.

Rift Valley fever

In 1951, a valuable bull, belonging to the Social Welfare Farm of the Johannesburg Municipality about 16 kilometres south of Johannesburg, suddenly went beserk, dashed through a barbed wire fence, bellowed and dropped down dead. Because it was a most valuable animal, three veterinary surgeons assisted by four of the inmates of the farm, which was for the rehabilitation of alcoholics, carried out a post-mortem. As was their custom at that time, none of the veterinary surgeons wore gloves during this operation nor did two of the four inmates who, in assisting them, handled the organs of the dead bull with their bare hands. Four days later the three veterinary surgeons and their two helpers suddenly took ill with high fever, headache, aching eyes and joint and muscle pain especially in the small of the back. The fever showed a characteristic biphasic pattern during which the patients felt very ill. However, after a somewhat prolonged convalescence all made a good recovery.

Virus was isolated from the liver of the bull and from the blood of the patients by the inoculation of mice, which died within three days. It was proved to be the virus of Rift Valley fever. This disease is so called because it was first recognized in the Rift Valley of Kenya in 1912 and again in 1931, when it was shown to be caused by a virus suspected of being transmitted by mosquitoes. Until the episode of the bull, the infection was not known to occur in South Africa and the question was asked, where had it come from?

The Social Welfare Department's farm is near Palmietfontein Airport, at that time South Africa's international airport, and planes coming in to land often lowered their undercarriage over the farm. Many of these planes had flown directly from Nairobi, on the edge of the Rift Valley. It was surmized that infective mosquitoes may have been carried from Kenya to Johannesburg in the wheel bays of the planes and had escaped when the wheels were lowered, to drop down and feed on the bull. It seemed a possible explanation, however, on investigation it became apparent that the bull had died towards the end of an extensive epizootic whose true nature had not been recognized.

During this epizootic, which affected the sheep farming area of the western Orange Free State and the southern Transvaal, many farmers lost over 90% of their lambs. Most pregnant ewes and cows aborted and many died.

A feature of the fatal illness was that the animals developed a haemorrhagic state, bleeding profusely from their mucous membranes with blood pouring from the nose and mouth.

The next problem was to define how the infection was spread. It was clear from the experience of the veterinary surgeons that the infection could be contracted by handling the tissues and organs of infected animal.

In 1953 there was another extensive epizootic, which began on the periphery of the region affected in 1951 and extended to involve most of the Orange Free State, most of the Transvaal and the north-western Cape Province. Once again many farmers lost over 90% of the newborn lambs. The epizootic was a major disaster for the farming community of the affected areas, not only because of their loss of stock but many of the farmers and their labourers contracted the infection. Man is very susceptible to Rift Valley fever and during

these two epizootics, all the veterinary surgeons, most farmers and many farm labourers handling the carcasses of animals which had died of the disease, became infected.

Following an incubation period of from three to seven days, the illness began suddenly with chills, muscle pains and fever lasting one week. Late in the course of the illness or early in convalescence, many patients lost the vision of an eye due to the involvement of the retina, which resulted in central blindness. When only one eye was involved, as in most cases, the effect was not too disabling, for most individuals can do well with only one eye, but when both eyes were affected the patient was severely handicapped.

In studies carried out in the 1953 epizootic, two pan breeding mosquitoes, *Aedes caballus* and *Culex theileri*, were incriminated as vectors of the virus and *Aedes caballus* was shown to be capable of transmitting the infection while feeding. Since then, in other studies, a number of other species of mosquito have been shown to be able to transmit the infection, including *Aedes aegypti*, *Aedes juppi*, *Aedes lineatopennis* and *Aedes circumflexatus*. *Culex theileri* appears to be the most important vector.

In 1975 the most extensive epizootic of Rift Valley fever so far experienced involved most of South Africa. Following exceptionally heavy rains, the pans were brim full, favouring the proliferation of these mosquitoes and thus conditions were unusually favourable for an epizootic. Many thousands of newborn lambs died. Once again many farmers, farm workers and veterinary surgeons contracted the infection, usually while cutting open and handling the carcasses of animals that had died of Rift Valley fever. For the first time, fatal cases were reported. The disease was contracted by six of seven such patients while handling sheep carcasses, but the source of infection in the seventh case was not known. During the course of their illness, these seven patients developed a haemorrhagic state with profuse gastrointestinal haemorrhage from which they died.

Post-mortem examination revealed a massive necrosis of the parenchymal cells of the liver. Mice inoculated with suspensions prepared from the liver died within 3–4 days. The virus so isolated was identified by the arbovirus team under Dr Bruce McIntosh as the virus of Rift Valley fever.

Lassa fever and Marburg virus disease

At the same time as this epizootic was occurring, a journey was undertaken by two Australian students, M.H. and D.O., on a holiday visit to South Africa. On 1 February 1975, they left Johannesburg and hitchhiked to Beit Bridge, Salisbury and Kariba Dam and then flew by plane to Victoria Falls, where baboons entered their chalet in their absence. They then hitchhiked from Victoria Falls to the Wankie turn-off from the main Bulawayo road. Possibly of significance, while waiting for a lift there, M.H. was bitten or stung on his right flank. He thought a sting had been left in and complained of the irritation for the rest of the day, but no sting could be detected.

At the Gwai River hotel they slept out in the open on the grass on which zebra grazed. At Bulawayo, their next hitchhiking stop, M.H. bought and handled raw meat. They were then given a lift by Mr Paul Bosman, a well-known wildlife enthusiast, who took them to his game farm near the Zimbabwe ruins. Here they came into contact in the same room with two tame vervet monkeys and the fox

terrier which had foster-nursed them, and at the braai M.H. handled raw eland meat. They then hitchhiked back to Beit Bridge and Johannesburg, passing through an area where RVF was known to be prevalent, arriving on 9 February. They left for the Natal South Coast the following day, arriving at Marburg that evening. They spent the night there and travelled on to Margate, their destination, the next day. While in Margate they fed monkeys in a cage in the neighbourhood of their hotel.

On Wednesday evening M.H. felt ill and complained of tiredness, headache, painful eye movements, muscle and joint pains and slight nausea. It had been their intention to return on Thursday, but M.H. felt too ill to travel. However, next day, because D.O. had to complete her travel arrangements, they hitchhiked back to Johannesburg, arriving on Friday evening when M.H. felt very ill indeed. The next day, Saturday 13 February, he consulted a doctor who, because of the patient's high fever and journey through Rhodesia, suspected malaria and referred him to the Johannesburg General Hospital, where he was admitted the same morning. He was treated with chloroquine, but when malaria parasites were not detected on repeated examinations, treatment with ampicillin was substituted with no apparent benefit. On Monday 17 February, he developed a profuse maculopapular rash with a deep erythematous background and began to bleed from his mucous membranes.

The patient now had a high temperature, a flushed face and neck with intensely congested conjunctivae, a profuse mottled erythematous maculopapular rash and blood oozing from needle puncture wounds. He was vomiting altered blood resembling coffee grounds, was bleeding from the nose, had diarrhoea and was passing large amounts of blood. It was clear he had developed a haemorrhagic state which seemed to be related to a virulent infection. In considering the differential diagnosis, special attention was given to those conditions occurring in this region of Africa.

Of the virus infections, the arbovirus infections considered included the alphaviruses. Chikungunya virus infection was suggested by the patient's flushed face, infected conjunctivae, erythematous maculopapular rash and high fever and by the fact that the infection was prevalent at the time in the lowveld of the northeastern Transvaal, in the Limpopo valley and adjacent areas of Rhodesia traversed by the patient before his illness. Also, in India, although not in South Africa as yet, chikungunya virus has been incriminated as one of the causes of haemorrhagic fever.

Of the flaviviruses, yellow fever was suggested by the high fever with a biphasic course, bradycardia signs of hepatitis with bleeding from the mucous membranes and vomiting of altered blood reminiscent of the black vomit characteristic of severe cases. Although yellow fever has not yet been identified south of the Zambesi valley, an epidemic occurred in 1971 in Luanda and its vicinity and its spread into Rhodesia in the meantime could not be excluded.

Of the bunyaviruses, Rift Valley fever was considered because the extensive epizootics in South Africa have been associated with many human cases, some of them developing a fatal haemorrhagic state. On several occasions during his tour, the patient had handled raw meat at a time when an extensive epizootic was involving most of South Africa, including the northern Transvaal.

Of the virus infections associated with rodents, Lassa fever was considered because of his sore throat, muscle pain especially in the calves and small of the back, lymphadenitis signs of hepatitis and the evident haemorrhagic state. The patient had camped near the Gwaai river where at the time there had been a population explosion of *Mastomys natalensis*, the multimammate mouse recently proved to be the reservoir of Lassa fever in West Africa.

In many areas of West Africa an annual rat hunt takes place when the floods have receded and the reed beds have dried out. The local population sets fire to the reeds and with sticks and clubs hunt down the rodents, which are driven out. They are regarded as a great delicacy and are an important item of their food. For many years it has been noted that these rat hunts are followed by outbreaks of severe illness amongst the participants. There is now little doubt that many of these patients suffered from Lassa fever. This disease first came to light in 1969 when a nursing sister, Sister Laura Wine, at the Mission Hospital in the village of Lassa in northeastern Nigeria, became ill. When her illness took a severe turn, she was flown to Jos for treatment in the hospital where she died. She was nursed by Sister Charlotte Shaw, who then became ill and died. Another nurse, Sister Penny Pinneo, who in her turn took ill, was then flown, in the care of Dr Lyle Conrad, to the United States where she was attended by Dr Frame and nursed in isolation in the Presbyterian Hospital. She became desperately ill, but after a stormy passage eventually made a good recovery. She was bled several times in her convalescence and the serum separated from the blood clot was stored under refrigeration for future use in the treatment of patients.

Blood collected from the nursing sisters who died in Nigeria and from Penny Pinneo was sent to the Arbovirus Laboratory in the Yale Department of Epidemiology and Public Health, where Dr Jordi Casals, the well-known authority on the serology of arbovirus infections, and Dr Del Clarke undertook their study. They inoculated the blood into litters of mice and groups of adult mice, and into tissue culture tubes and were successful in isolating a hitherto unknown virus which was named the Lassa virus after the village where the first patient contracted the disease.

Because of the dense areas in the virus particles, as seen under the electron microscope, which resembled grains of sand, they decided to call this newly discovered virus an Arena virus. Further studies revealed that the virus of lymphocytic choriomeningitis, Junin virus, the cause of Argentinian haemorrhagic fever, and Machupo virus, the cause of Bolivian haemorrhagic fever, also belonged to the Arena virus group. All have their reservoir of infection in rodents. Studies in Nigeria finally incriminated *Mastomys natalensis* as the reservoir of Lassa virus.

In the course of these investigations, Dr Casals contracted the infection and for several weeks was severely ill but recovered after receiving a transfusion of convalescent serum donated by Penny Pinneo, the nursing sister who recovered after being flown to New York for treatment.

Marburg virus disease was considered for our patient in Johannesburg because of the high fever, severe disturbance of liver function, diarrhoea and a profuse maculopapular rash and the profuse bleeding from his mucous membranes. The patient had been in the vicinity of baboons at the Victoria Falls and in close proximity to

vervet monkeys at the game farm near the Zimbabwe ruins and at Margate. The first recognised outbreak of Marburg virus disease had been traced to vervet monkeys.

A number of bacterial infections were also considered because they may manifest with fever and a haemorrhagic state. The best known is meningococcal septicaemia, which manifests with a typical purpuric rash often within 24 hours of the onset of illness. Staphylococcal and streptococcal septicaemia, often complicating local septic lesions, may also be the cause of an haemorrhagic state.

Of particular concern in this patient was the possibility of septicaemic plague, because he had travelled through and slept on the veld in the area between Wankie and Gwaai river, where an epizootic of plague affecting *Mastomys natalensis* had recently occurred.

Of the protozoal infections, malaria and trypanosomiasis were considered because patients with a heavy parasitaemia may develop an haemorrhagic state. Malaria is widespread in Zimbabwe and trypanosomiasis is restricted to the tsetse fly areas, but in his travels it was possible that the patient had been exposed to both these infections. After assessing all the clinical and clinico-pathological findings, it seemed likely that the patient had a virulent virus infection manifesting with hepatitis, lymphadenitis and a haemorrhagic state.

The patient died on the evening of 18 February, and at post-mortem the immediate cause of death was found to be profuse gastro-intestinal and pulmonary haemorrhage associated with hepatitis. Sections of the liver showed a patchy but extensive necrosis of the liver with eosinophilic degeneration of the parenchymal cells.

The findings suggested that the patient had died of one of four virus infections prevalent in Africa, namely yellow fever, Rift Valley fever, Lassa fever or Marburg virus disease. As the last two infections are known to be contagious and dangerous, it was decided to isolate the medical and nursing staff who had cared for the patient in the event of a second case occurring.

D.O., the travelling companion of M.H., was admitted to the Johannesburg Fever Hospital on 22 February with symptoms suggestive of the same disease. The decision to isolate the medical and nursing staff was implemented. One member of the nursing staff, Sister M.C., who had nursed M.H. and D.O., and so was in quarantine, reported sick on 28 February with muscle pain and fever. Both patients D.O. and M.C. recovered after an acute illness characterized by headache; muscle pain and high fever lasting one week and by a profuse erythematous maculopapular rash appearing on the fifth day of illness.

To establish the diagnosis, specimens of blood, throat swabs, faeces and urine were collected from each patient for laboratory tests. Repeated blood films examined for the presence of malaria parasites and trypanosomes gave negative results. Blood cultures remained sterile, thus tending to exclude septicaemia due to meningococci, staphylococci, streptococci and also plague. Mice inoculated with blood failed to develop plague and did not die, thus tending to exclude Rift Valley fever, and those inoculated intracerebrally also survived, thus tending to exclude yellow fever and also, but not so certainly, Lassa fever. Electron microscopy of sections of the liver showed arrays of bodies resembling virus par-

ticles similar to Marburg virus.

Coverslip preparations of tissue cultures of vervet monkey kidney cells inoculated with suspensions of liver, spleen, kidney and brain when fixed and stained with haemotoxylin and eosin two weeks later, showed cytoplasmic inclusions resembling those of Marburg virus infection. A fluorescent antibody test revealed the development of antibodies in the blood of patients D.O. and M.C., who recovered, to the virus isolated from M.H., who died.

The virus was finally identified in immunofluorescent antibody tests and shown to be identical with the virus isolated from the original Marburg outbreak.

Congo virus infection

The next patient to whom attention will be called was a 13-year-old schoolboy who attended a veld school camp in a nature reserve in the Bloemhof district of the southwestern Transvaal. After recent rains, the grass had grown luxuriantly, providing good grazing for numerous wild animals including wildebeest, hartebeest, impala, springbok, steenbok, gemsbok and eland and a few head of cattle. Smaller animals, including Cape hares, ground squirrels and yellow mongoose are common in the area. While at camp, the boys were instructed in veld craft which involved long walks through the veld and for several nights they slept on the ground outdoors, either in the open or in small tents.

The patient returned to his home in Edenvale near Johannesburg on Friday 13 February. On 14 February, he told his mother that he was feeling ill and complained of severe headache and shivering attacks, and said he had a lump in the hair on the top of his head. His mother found that this was due to what she described as an eight-legged insect which she removed. She noted that it had relatively long banded legs. She wrapped it in tissue paper and handed it to the doctor when she accompanied her son to his consulting rooms.

He handed the arthropod to his wife, who had taken a course in entomology and she identified it as a tick. On examination of the patient, the doctor found a bite mark where the arthropod had been attached. He made a diagnosis of tick-bite fever and prescribed the appropriate treatment. In spite of treatment the patient did not improve. Indeed his condition continued to deteriorate and on 17 February, as he was vomiting and passing blood, also oozing blood from needle puncture wounds and was in an incipient haemorrhagic state, he was transferred to the paediatric intensive care unit of the Johannesburg Hospital. On admission he was pale, shocked and confused. There was no rash.

When seen on Wednesday 18 February, the patient was semicomatose with profuse haematemesis and melaena and had petechiae especially on the right side. It was clearly essential to establish the diagnosis as soon as possible. Not only was this important in the patient's interests but also for the protection of the medical and nursing staff caring for him, in view of the possibility of a dangerous infection. While the diagnosis remained in doubt, the medical and nursing staff were instructed to wear protective clothing consisting of a gown, mask, gloves, goggles and cap. The possible causes were systematically considered, special attention being given to conditions occurring in Africa.

Of special importance were the arbovirus infections of which over 30 have been identified in South Africa and 10 are known to in-

fect man. Of these, Rift Valley fever was known to have been prevalent during the epizootic in 1975 in Bloemhof and the surrounding districts. Although it was unlikely that this infection would give rise to a severe haemorrhagic state in a previously healthy schoolboy, it remained important to exclude it as a cause of his illness.

In view of the rapid evolution of the patient's illness into a severe haemorrhagic state, Lassa fever and Marburg virus disease were also seriously considered as possible causes of his condition. Arrangements were made to exclude both these infections.

The doctor's wife, after being shown the collection of ticks in the Entomology Department of the SAIMR, definitely identified the tick removed from the patient's scalp as a species of *Hyalomma*, known to be the most important transmitter of Congo-Crimean haemorrhagic fever. As the patient's signs and symptoms were similar to those of the infection, it was concluded that his illness was due to Congo virus. The need for protection of the staff was re-emphasized.

Immediately on their receipt in the laboratory, suspensions prepared from the blood and urine of the patient were inoculated into tissue cultures and litters of baby mice. One week later the baby mice began to sicken and films made from the brains of the mice gave a positive result for Congo virus in the immunofluorescent test but negative results for Marburg, Lassa and Rift Valley fever viruses, thus confirming provisional diagnosis of Congo-Crimean haemorrhagic fever.

Congo-Crimean haemorrhagic fever was first observed in the Crimea by Russian scientists in 1944 and 1945. Congo virus was first isolated in Africa from the blood of a febrile patient in Zaire in 1956. In 1967, 12 cases of which five were laboratory infections, were recognized in East Africa. The virus has been isolated from a variety of animals including cattle, sheep, goats, hares and hedgehogs and from a number of ticks which parasite them, including *Hyalomma marginatum*, *Amblyomma variegatus*, *Boophilus decoloratus* and *Rhipicephalus* species. The most important transmitters of the infection to man are species of the genus *Hyalomma*. The larval and nymphal stages of some species parasitize birds, including migratory birds, some of which fly from south eastern Europe to South Africa and thus may carry the infection over long distances. Recently, outbreaks of Congo-Crimean haemorrhagic fever in Pakistan, Iraq and Dubai involved members of the hospital staff in those countries.

In an outbreak in Rawalpindi, Pakistan, in January 1976, five members of the hospital staff who had close contact with the fatal index case contracted the infection and two died. In Baghdad, Iraq, a member of the medical staff and a nurse were infected in hospital from the index case; all three patients died. In Dubai in November 1979, the index case died in the casualty ward of the Rashid Hospital soon after admission. There were five secondary cases of whom two died.

Subsequently, in South Africa, serological studies carried out by Dr R. Swanepoel and the team in the high security laboratory of the National Institute for Virology have revealed that Congo virus had previously affected a number of wild animals in the nature reserve and several human beings living in the vicinity. Further, it was found that blood from hares trapped in each of the four provinces

of South Africa had antibodies to the virus. Thus, it is clear that Congo virus infection is endemic over a wide area of South Africa.

Korean haemorrhagic fever

Finally, attention will be called to a virus whose presence has only recently been detected in Southern Africa but, as yet, no human illness due to it has been identified in this region. However, in other parts of the world it has been responsible for serious outbreaks of disease. One of the first of these occurred during the Korean War when it was noted that many soldiers, serving in the United Nations forces at the front, developed an illness often terminating in a haemorrhagic state. It became known as Korean haemorrhagic fever and indeed this was one of the first diseases to be labelled specifically as a haemorrhagic fever.

Intensive efforts over many years to elucidate its aetiology failed until Lee and Lee in Korea demonstrated the presence of a virus, now known as the Hantaan virus, in the lungs of the natural reservoir of the infection, the striped field mouse *Apodemus agrarius*.

Extensive investigations have since then revealed that the haemorrhagic fever with renal syndrome of eastern Siberia and the epidemic haemorrhagic fever of the Republic of China are caused by the same virus. Further, the haemorrhagic fever with renal syndrome of European Russia and of the Balkan countries, Hungary, Czechoslovakia and of Scandinavia, have been shown to be caused by agents similar or closely related to the Hantaan virus. Thus this infection, or closely related infections, occur across much of the Eurasian land mass.

Recent surveys of the antibodies present in the sera of rodents collected in various parts of Zimbabwe and South Africa have revealed that a number of these sera give positive reactions with the Hantaan virus, thus indicating that this infection is also prevalent in Southern Africa. These findings thus add yet another virus disease to be considered when confronted with a patient presenting with the signs and symptoms of haemorrhagic fever.

On the basis of our experience and that of others, medical officers should be alerted to the possibility that a patient is suffering from one of the so-called dangerous infectious fevers when he gives a history of recent travel in Africa, especially through bush country and of contact with wild animals or of the handling of carcasses or raw meat. The suspicion will be strengthened if the patient presents with high fever, and complains of headache, sore throat, muscle and joint pains and nausea and shows signs of liver disorder and if, during the course of his illness, he develops a tendency to bleed from mucous membranes and from needle puncture wounds. The suspicion will be still further strengthened if laboratory investigations exclude malaria, trypanosomiasis and relapsing fever, and by the finding of a leucopenia and an increasing thrombocytopenia, and evidence in urine and blood tests of increasing liver dysfunction and kidney damage and in coagulation studies of a developing haemorrhagic state.

When it is suspected that a patient has one of these dangerous virus infections, the nursing and medical staff attending to him must wear protective clothing including cap, goggles, mask, gown, gloves and bootees. The staff may relax these precautions only if and when it becomes clear that the patient has a non-infectious disease and they are not necessary. □

'IMPORTED' AIDS EPIDEMIC PROMPTS FEAR, MEASURES

Toll Summarized

Melbourne THE AGE in English 17 Nov 84 p 4

[Article by John Lethlean]

[Text]

Nine people have died in Australia as a result of AIDS, according to the National Health and Medical Research Council.

The figures do not include the deaths in Brisbane, revealed this week, of three babies who received transfusions of blood suspected of having been contaminated with the AIDS virus.

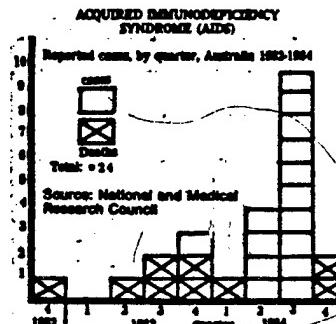
According to the NHMRC, there have been 24 confirmed cases of AIDS in Australia: 16 in New South Wales, six in Victoria and two in Western Australia. Five of the dead AIDS victims were from Victoria and four from NSW.

The first case of AIDS was diagnosed in Australia late in 1982, about 12 months after reports of the epidemic were published in the US. It was confirmed in an American homosexual living in Sydney.

In May 1983, as a result of publicity in the US and Britain, blood banks throughout Australia asked male homosexuals not to donate blood because of a risk of transmitting AIDS. The same month a second case of AIDS was reported to the Victorian Health Commission.

It had been found in a Melbourne male who contracted the disease in the US. So far all but two of the confirmed AIDS cases have occurred in homosexual men who had sexual contact with US citizens or with people who had visited the US.

In June 1983, AIDS killed its first Australian victim, a middle-aged Sydney homosexual male



who had gone to the US for a holiday, knowing of his condition, and died there three weeks later.

The following month Australia's first case of AIDS in a heterosexual was diagnosed in Melbourne and concern over contracting AIDS caused a critical shortage of blood bank supplies in Melbourne and Sydney.

In January this year, American blood banks admitted for the first time a link between AIDS and blood transfusions. By July, the fear of AIDS transmission through blood transfusions had hit Australia after batches of blood contaminated with an AIDS-linked virus were distributed in three States and the ACT.

In August, it was revealed that a Sydney man contracted AIDS as a result of a contaminated blood transfusion 12 months earlier. The following month the Melbourne blood bank banned all blood donations from groups at risk of contracting AIDS, including homosexual males, intravenous drug users and recent immigrants from Haiti.

National Daily Warns on Issue

Sydney THE AUSTRALIAN in English 17-18 Nov 84 p 24

[Editorial: "The New Plague"]

[Text]

MANKIND'S fear of death and the unknown has never been better illustrated in recent years than with the outpouring of outrage and dread over the appearance of acquired immune deficiency syndrome (AIDS). It is not unusual to hear people talk of the disease as they would of a biblical pestilence - a new plague come to ravage us for our sins.

There is no doubt that it is a terrible disease. Its special terror lies in its ability to strike down the innocent. But it is still just a disease that can be isolated if we refuse to panic.

To date 10 people have died in Australia from AIDS since it was first identified here just over two years ago. But this number is probably only the tip of the iceberg. Researchers claim the disease may take as long as three years to show up in an infected adult. We may now have a viral time-bomb ticking in our midst.

It is not so much AIDS' ability to kill as it spreads through the normally life-giving medium of blood transfusions that attracts most fear. Australia has been lucky in that for years we have had one of the world's most efficient blood transfusion services operated by the Red Cross. We do not have to pay for blood and likewise we do not pay blood donors. Thousands of people each week give blood throughout the country and in exchange they get a cup of tea, a milkshake or a hot dog. It is perhaps one of the few real examples of Aussie mateship still left in our increasingly avaricious society.

That selfless system is now under threat. More than six months ago the Blood Bank appealed to homosexual

men to stop donating blood. It introduced forms for all blood donors which specifically asked if they had been engaging in homosexual acts. But it seems some homosexuals either ignored the appeal or flouted the warnings.

The chief medical officer of the NSW Health Department, Dr Tony Adams, believes there may be a minority of homosexuals who are donating blood to rebel against society. It is hard to accept that anyone could be so vindictive as to take such action but when added to the revelation by a Sydney gay activist that some homosexuals who have recently given blood are now refusing to identify it for fear of prosecution, it can only add fuel to the fire.

All things considered, the move on Thursday night by the Queensland Government to introduce penalties of jail terms and fines of up to \$10,000 for people who knowingly give false information on their suitability as a blood donor will be welcomed by most Australians. It is an example that should be followed by all other States and the Federal Government.

It is in the interest of the entire homosexual community to ensure that no other incidents like that of the Queensland babies are caused, either by accident or design, by one of its number - as any such incident could have dire consequences for the whole community.

The spread of this disease must be stopped quickly and if it takes drastic measures, which may be seen as an infringement of civil rights by some of the community, we must accept them.

Health Officials Act

Melbourne THE AGE in English 19 Nov 84 pp 1, 3

[Article by Mark Metherell]

[Text] Australia's health ministers yesterday agreed to launch an urgent national campaign to combat AIDS Which will start this week with a plea for more women to give blood.

The Ministers also agreed in principle on a uniform declaration to be completed by blood donors. This is to reduce the risk of contaminated blood donations, the emergence of which has been linked with the deaths of two Queensland infants and the spread of possibly infected blood supplies to haemophiliacs.

But there was no agreement yesterday on the national introduction of punitive legislation against donors who falsely declare they are not at risk of AIDS, including homosexuals and intravenous drug users.

And in Adelaide, the Queen Elizabeth Hospital yesterday halted its artificial insemination program because of the AIDS scare. The hospital uses unknown donor sperm in its program and it is now thought babies conceived using AIDS-contaminated sperm would be at risk.

At the five-hour conference in Melbourne attended by all health Ministers and more than a dozen medical and blood experts, the ministers also decided on:

--The introduction of a national AIDS "task force" to keep health Ministers briefed on the latest clinical and scientific developments.

--A \$1 million national publicity campaign to educate the population about AIDS, to encourage more women blood donors and to underline those people at risk who should not give blood.

--A national advisory committee, comprising representatives of the States, the Australian Medical Association, the Red Cross, haemophiliacs and the homosexual community.

--The establishment of a \$300,000 national reference centre at Melbourne's Fairfield Hospital to monitor screening tests in collaboration with the department of immunology at St Vincent's Hospital, Sydney.

--The establishment of assessment, counselling and support services for patients with AIDS.

The Federal Health Minister, Dr Blewett, announced that the Government had accepted an offer from the United States Government for a task force from the Centre for Disease Control, the internationally-recognised centre of expertise on AIDS-based in Atlanta, Georgia.

The American task force will advise Australian health officials on the latest developments in screening and containment of the disease.

Dr Blewett said that the United States Government had informed Australia that it would do everything to assist in the delivery of screening devices to test big volumes of blood for antibodies to the AIDS-linked HTLV-III virus. It was hoped they would be here by early next year.

The new AIDS task force and the Red Cross Blood Transfusion service would report to a health Ministers' conference on 19 December with a suggested uniform declaration for blood donors, he said.

The AIDS task force had also been asked to look at legislation in relation to false declarations. Dr Blewett said: "We have got to make sure that any legislation action we take is not counter-productive in dealing with containment of the disease in this society."

Asked of he thought there would be punitive legislation introduced nationally, Dr Blewett said he would have to wait for advice at the meeting on 19 December.

"We have got to think about legislation in relation to tracing all the contacts of people involved; we have got to think about what effect it will have on encouraging people to give blood. All those issues have to be weighed but we want to do it urgently," Dr Blewett said.

Dr Blewett said it could only be hoped that the steps announced would help contain the disease. "But it's no good pretending on the experience of most other Western countries that we are not going to face a serious public health problem in relation to AIDS in the years ahead of us," Dr Blewett said.

The chairman of the taskforce on AIDS, Professor David Pennington, said that it was inevitable that AIDS would spread. He said: "There will be many more cases over the next five years, without question, even if we were able to stop at this stage the transmission of the virus further."

Professor Pennington, Melbourne University's Dean of medicine, said that the public had to understand this fact and that AIDS had a long incubation period.

The Australian AIDS Action Committee, representing homosexuals, last night welcomed the Ministers' decisions. In a state-

ment it said: "We believe that the rational and constructive approach adopted by today's meeting is a welcome change from the cheap political point-scoring seen over the past few days."

A Sydney City Council alderman, Mr Brian McGahan, yesterday said that on Saturday night a gang roamed Oxford Street, Darlinghurst, which had several gay bars, assaulting homosexual men and kicking in doors.

The Anglican Dean of Sydney, the Very Reverend Lance Shilton, yesterday accused AIDS carriers of having "blood on the hands". He claimed that AIDS was the inevitable consequence of Australia's soft attitude to homosexuals.

Dr Blewett, at yesterday's news conference, was highly critical of some Sunday newspaper stories suggesting that 13 deaths were linked with the contaminated blood supplies in Queensland.

Virus Found in Homosexual Donors

Melbourne THE AGE in English 20 Nov 84 p 1

[Article by Mark Metherell]

[Text]

New Melbourne research findings disclosed yesterday show that significant numbers of homosexuals who gave blood until recently had been in contact with the AIDS-linked virus.

The director of the Walter and Eliza Hall Institute for Medical Research, Sir Gustav Nossal, told the institute's annual meeting that 24 per cent of a study group of 101 homosexuals were found to have been infected with the HTLV-III virus that has been closely linked with AIDS.

And researchers at the institute, Australia's leading medical research centre, later revealed that of the same group of 101 men, about 30 per cent had given blood during the past 12 months, before a total ban on blood donations by homosexuals was implemented.

The importance of the findings is that they show that even among apparently healthy homosexuals, there is already a considerable spread of what can be early AIDS symptoms.

Because many of the same people were, until three months ago, likely to give blood, significant amounts of possibly infected material could now have been used in the manufacture of blood products, including those for the regular treatment of haemophiliacs and those with thalassemia.

As State Government moves to combat AIDS gathered momentum yesterday, it was announced that all four artificial-insemination-by-donor services in Melbourne would suspend their treatments.

In Brisbane, tests on the blood of a baby suspected of receiving AIDS contaminated blood have proved to be positive. A Mater hospital spokesman said the baby was in a satisfactory condition.

In Adelaide, Flinders Medical Centre halted its artificial insemination program. A recommendation to suspend similar programs in NSW will be made by health authorities on Thursday.

The fertility clinics — at Prince Henry's Hospital, Queen Victoria Medical Centre, the Royal Women's Hospital and the Epworth Hospital — treat an estimated 300 patients a month.

The move, announced by the Health Minister, Mr Roper, surprised fertility specialists who said that they were planning to investigate the matter but believed the risk of AIDS to patients to be very low.

But Mr Roper said that on the basis of latest scientific evidence, it was thought that semen contaminated with the HTLV-III virus could infect both mothers and their babies.

In measures estimated to cost the State about \$1 million a year, Mr Roper also announced:

- A \$135,000 grant to the Victorian Red Cross Blood Transfusion Service to meet staffing costs for a program to reduce the risk of affected donors giving blood.
- Funds for blood screening tests costing up to \$600,000 a year once the Commonwealth reduces its contribution to the scheme.
- The establishment of a Victorian reference centre to test blood of those suspected of being infected with AIDS, at a cost of about \$200,000.
- An AIDS education program organised with the Australian Medical Association for doctors.
- The establishment of assessment and counselling services for haemophiliacs, patients suffering thalassemia, and the homosexual community.

"We expect demand on those services to grow in future years," Mr Roper said.

An immunologist at the Hall Institute's clinical research unit, Dr Ian Frazer, said yesterday he could not reveal exactly how many of those found with the suspect virus antibodies had given blood.

Dr Frazer said that the significant feature was that the study group of 101 homosexuals had all been selected for their apparent good health. (A recent Sydney study showed a high incidence of antibodies among a group of homosexuals, but these were patients who had already seen their doctors because of worries about AIDS.)

The director of the Commonwealth Serum Laboratories, Dr Neville McCarthy, said earlier

yesterday that the most frequently-used clotting product used by haemophiliacs in Australia should be completely free of HTLV-III virus by early next year.

CSL has now introduced a process in which the blood products are heated to 60 degrees celcius for 72 hours, deactivating the virus.

Dr McCarthy said that the unfortunate reality was that there were likely to be considerable numbers of haemophiliacs who had already received contaminated blood and the full results of that would not be known for years because of the long incubation period in many cases of AIDS.

Professor Nossal told the institute's annual meeting that the institute had introduced research on AIDS in 1982 long before the problem reached its present grave proportions.

He said that the institute had to stay "in the forefront of areas of disease of potential danger to the community".

"The current AIDS controversy is an acute example of this," Professor Nossal said.

CSO: 5400/4329

ARTICLE REPORTS 300 UNDER TREATMENT FOR AIDS

Sydney THE AUSTRALIAN in English 30 Nov 84 p 1

[Article by Margaret Rice]

[Text]

AT least 300 people in Australia were being treated for AIDS and its related problems. Professor David Pennington, a member of the AIDS Advisory Committee, said yesterday.

Speaking after the committee's first meeting, he said there were 30 people suffering from the advanced stages of the disease and "ten times that number" being treated for it.

It was hoped this second group of sufferers would not develop the fatal symptoms of the end stage of the disease.

But he said they were still being treated by hospitals because they had all or most of the symptoms of AIDS.

Professor Pennington said there were many more carriers in the community than there are sufferers. But the carriers often did not exhibit any symptoms.

The AIDS committee last night met advertising executives to discuss possibilities for developing a national campaign to inform the public, the homosexual community and the medical community about AIDS.

Meanwhile, highway patrol officers in NSW are considering refusing to man random breath test operations as a protest against what they consider are inadequate safeguards to prevent police contracting AIDS while doing such duties.

Rubber gloves and an alcohol based disinfectant foam were yesterday issued to officers at the North Sydney highway patrol station after they complained to the police department on Wednesday about their fear of contamination from AIDS sufferers while on random testing duty.

But the NSW Police Association issued a statement later saying its members regarded the measures as inadequate. The statement called on the NSW Police Commissioner, Mr John Ayers, to clarify the situation.

Mr John Greaves, president of the association, said: "By issuing the gloves and disinfecting foam the department acknowledges that police risk contracting AIDS while performing random breath tests.

"But police feel that these gloves may not be sufficient. The officers are given the alcohol solution to wash their hands in before putting the gloves on.

"It is obvious they could inadvertently transmit the disease if they rubbed their face with their hands," he said.

Professor Pennington said the NSW police demands were an over-reaction. While it was possible for AIDS to be transmitted through saliva, this was extremely rare. Ordinary hygiene, including washing the hands, would be just as effective in preventing transmission of infections.

The professor said it was not advisable for people to put pressure on relatives to give blood before they have an operation.

He gave the example of a child needing an operation and the mother putting pressure on the father to give his blood in case a transfusion was needed.

Professor Penington said that if the man were bisexual, the pressure of the situation would cause him to give the blood even though he was a member of the at-risk group.

CSO: 5400/4332

QUEENSLAND CONSIDERS MANSLAUGHTER IN AIDS DEATH

Brisbane THE COURIER MAIL in English 4 Dec 84 p 1

[Text] QUEENSLAND may introduce more serious charges against AIDS carriers who donate blood they know could be contaminated.

The Attorney-General, Mr Harper, last night said he had instructed the Solicitor-General to investigate provisions of the Criminal Code.

Under present provisions, it did not seem possible to charge offenders with manslaughter if their contaminated blood resulted in the death of others, but it would be investigated, Mr Harper said.

The Health Minister, Mr Austin, said he did not support a call, from the father of a baby who died after a transfusion of Acquired Immune Deficiency Syndrome contaminated blood, to publicly name the donor.

"I do not know his (the donor's) name, but I do think the person concerned was grossly irresponsible," Mr Austin said. "I do not know how you can deal with that type of person."

"I have had discussions with Mr Harper about possible manslaughter charges and he is looking into it."

"I feel there will be an upsurge in reportings of AIDS victims and we are now having tests carried out on other adults in Brisbane."

"If the parents of the babies who have died can substantiate to me that the public naming of the donor would serve some purpose, perhaps we could look at it."

"But now, I am bound by the security provisions of the Health Act."

Mr Austin said advice to his department was that there was no cure in sight for AIDS.

The Queensland Nurses' Union president, Mr Roy Drabble, yesterday called on hospitals to tighten up their infection control policies.

All nurses should be screened after dealing with patients suffering from infectious diseases, including AIDS, he said.

"Most hospitals have infection control policies and if they are adhered to there should be no problem," he said.

CSO: 5400/4336

BRIEFS

DIARRHEA OUTBREAK--DAULATPUR, Oct. 29:--One baby died of diarrhoea in Repsa Upazila recently. At least 20 persons were attacked with the disease during the last few days. The affected villages are Sree faltala, Nandanpur, Chadpur and Narkeli. [Text] [Dhaka THE BANGLADESH OBSERVER in English 31 Oct 84 p 10]

MORE DIARRHEA DEATHS--TANGAIL, Nov 3 (BSS): Diarrhoeal diseases have broken out in Char areas under Kakua Hugra and Katuly unions in Sadar upazila. Worst affected villages are Malutypara and Dhulbari. At least 12 persons expired in the area due to the disease in last one month and a good number of people are also suffering from it. According to Civil Surgeon, Tangail, special medical teams are working there. [Text] [Dhaka THE NEW NATION in English 4 Nov 84 p 8]

JAUNDICE OUTBREAK REPORTED--Jaundice has broken out in Srimangal upazila in an epidemic form. The number of patients is increasing day by day. The treatment of disease has become difficult for want of medicine. Besides this, blood dysentery, diarrhoea intestinal disease, influenza and throat pain have also broken out. [Text] [Dhaka THE BANGLADESH OBSERVER in English 7 Nov 84 p 7]

MORE DIARRHEA DEATHS--SAILKUPA, (Jhenaidah), Nov 10: Five persons died of diarrhoea and 10 others were attacked with the disease during the last one month in Sailkupa upazila. When contacted, the upazila health authority confirmed the death and said measures had been taken in the affected areas. [Text] [Dhaka THE NEW NATION in English 12 Nov 84 p 2]

INTESTINAL DISEASE EPIDEMIC--RANGPUR, Nov 9: Intestinal diseases have broken out at place of Northern Bengal in an epidemic form and about two lakh people have been suffering thereof, according to a reliable source here. The source gave the breakups of the incidences as follows: former Rangpur--65,000, greater Dinajpur--30,000, Bogra and Zoypurhat--25,000, former Pabna--30,000 and greater Rajshahi--46,000. People complain that the preventive and curative measures undertaken by the Health Department are not at all satisfactory and as a result, the diseases have been spreading sporadically. Besides, it is further learnt that about 12 lakh children have been suffering from stomach ailments skin diseases etc. in Rangpur, Kurigram, Nilphamari, Gaibandha and Lalmonirhat. Of the affected children 60 p.c., are suffering from skin diseases. According to reliable sources, these diseases originate from malnutrition and deficiency of vitamins caused by poor nourishment level of the cross-section of the population. [Text] [Dhaka THE NEW NATION in English 12 Nov 84 p 2]

BRAZIL

INCIDENCE OF AIDS ON RISE IN SAO PAULO

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 28 Sep 84 p 13

[Text] Forty homosexuals have already died in Sao Paulo, victims of Acquired Immune Deficiency Syndrome--AIDS. The information was furnished by the Medical Dermatology Division of the Health Secretariat, which reported 73 confirmed cases of the disease up to the end of August, and is predicting 130 to 140 cases by the end of the year, since the statistical curve has not changed and the cases double every 6 months. Neither has there been a change in the prognosis of the disease, which continues to kill everyone who contracts it.

Now, however, it is not only male homosexuals who are contracting it. In yesterday's report, the head of AIDS treatment in Sao Paulo, Paulo Roberto Teixeira, said that there were three cases of heterosexual males who probably contracted the disease from relations with women in the United States. There is one confirmed case of a hemophiliac who incurred the disease from a blood transfusion he received, and two other suspected cases involving hemophiliacs. There are also two women who have bisexual companions who contracted the disease and transmitted it to them. Most cases, however, involve homosexual males; six to seven cases are diagnosed in Sao Paulo every month. The youngest victim is a 17-year old boy.

8-Month Survival

According to Paulo Roberto Teixeira, AIDS in Brazil is following a similar pattern to the disease in the United States. There too the curve is an upward one, with the number of cases doubling every 6 months. However, since the epidemic started earlier there, they have recorded 5,500 cases and 2,300 deaths. The incubation of the disease ranges from 6 to 24 months, and once the initial symptoms have been detected, the patient only survives an average of 8 months. There is one case in Sao Paulo where the patient survived 26 months, but that is the only example of a longer survival.

The doctors also say that although a woman with AIDS can bear a child with the disease, and the disease is transmitted by hypodermic needles in drug addicts who take drugs intravenously, no cases of this sort are on record yet in the State of Sao Paulo.

9805

CSO: 5400/2012

UNIDENTIFIED DISEASES CAUSE DEATHS IN SAO PAULO, MINAS

Meningococcemia Feared in Promissao

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 2 Nov 84 p 9

[Text] Doctors from Emilio Ribas Hospital and the Health Secretariat, who were in Promissao in the Media Noroeste yesterday, have still not reached any final conclusions on the causes of the deaths of five children in that town during the past 10 days. A suspected increase in the number of cases of meningococcemia has not been confirmed, as laboratory tests run at the Marilia Physicians' Hospital proved negative.

Yesterday afternoon, representatives of various sectors of the Promissao community met at the city's General Hospital with physicians studying the problem, and were told that no conclusion had yet been reached with regard to the disease. Despite the negative laboratory tests, the doctors still suspect an increased incidence of meningococcemia. As a result, both the Health Center and the local hospital are making preparations to handle possible new patients.

Besides the five deaths on record, all of whom were children between the ages of 2 and 4 years old (except for one 8-year old) and died within only 24 hours of contracting the disease, no other persons were hospitalized in Promissao with the disease. Three other children, however, are under observation.

The doctors are nevertheless recommending that people be on the alert, and that they seek help in the event their children show symptoms of a high fever and red spots on the body.

They did not feel it was necessary to immunize all children, but only those persons who were in direct contact with the children who died.

The outbreak of the disease in Promissao has left the people in fear, according to representatives of the local community who attended yesterday's meeting. Many people are seeking medical care in other cities in the region, and are even trying to obtain vaccinations in private institutions.

According to representatives of the Health Secretariat and Emilio Ribas Hospital, meningococcal disease can take various forms, including meningococcemia.

Mysterious Outbreak in Minas

Sao Paulo O ESTADO DE SAO PAULO in Portuguese 10 Nov 84 p 10

[Text] A mysterious disease which is spreading in Mucuri Valley in Minas is continuing to cause more deaths and creating panic among the people in the region. In Corrego do Norte in Ouro Verde district, where the disease was detected 5 months ago, 17 people have already died. In the past 15 days, the situation has grown worse in the rural areas around the city of Bertopolis, where more than six deaths have already been recorded.

9805

CSO: 5400/2012

BRAZIL

BRIEFS

MALARIA IN SERRA PELADA--Belem. Reopened on 9 October after having been shut down for 10 months, the Serra Pelada mine is continuing at low production levels, because of 4 to 5 meters of mud which has collected in the main cavern, as a result of the heavy rainfall south of Para. Malaria, however, is at high levels among the approximately 60,000 miners, with dozens of cases on record. In releasing this information, the coordinator of Serra Pelada, Octavio Blanco, disclosed that production for the first month since the shutdown will be very low--117 kilos--but higher than the figures for October of last year, when no more than 3 kilos of gold were mined. With the improvements made to the mine, he expects output to exceed 20 tons of gold. Even with the arrival of winter in the region, he assured that production should rise as a result of the measures adopted by the miners' cooperative, such as opening shafts around the main cavern to lower the ground water and keep the cavern dry. Despite this, there is still a possibility that mining operations will be suspended to facilitate drying, with work to resume immediately thereafter. If the drying of the cavern can be controlled, the same is not true with malaria, as 30 percent of the cultures taken have been positive. The greatest problem is in the Igarape do Sereno area, where control of the coming and going of miners is still insufficient. [Text] [Brasilia CORREIO BRAZILIENSE in Portuguese 8 Nov 84 p 8] 9805

POLIO INCIDENCE DATA--There were 19 cases of poliomyelitis in Brazil this year, all of which were concentrated in the Northeast, and primarily in the states of Alagoas, where 7 cases were recorded (with one death), and Sergipe, with 8 cases, 2 of which resulted in death. There were two cases in Paraiba and one in Ceara and Rio Grande do Norte. The director of epidemiology at the National Secretariat for Basic Health Activities, Roberto Becker, said that they are not yet in a position to tell whether this concentration of cases in Alagoas and Sergipe is normal. He added that the matter needs to be further evaluated with an in-depth investigation, including data on coverage of immunization against poliomyelitis in the area, for instance. Last year there were 42 cases, 50 percent of which were in the Northeast. Thus the Secretariat does not regard this year's figures as abnormal. However, Alagoas and Sergipe did not have the concentration of cases then that they do now. [Text] [Sao Paulo O ESTADO DE SAO PAULO in Portuguese 22 Sep 84 p 10] 9805

CSO: 5400/2012

PETS INCREASE LEPTOSPIROSIS THREAT

Kuala Belait THE BORNEO BULLETIN in English 10 Nov 84 p 2

[Text]

BANDAR SERI BEGAWAN. - Dogs and cats infected with the deadly rat-carried disease leptospirosis are posing a serious health threat in Brunei, an official said this week.

Government veterinary officer, Mr C. V. Subramaniam disclosed that he is treating "four or five" dogs and cats monthly for leptospirosis which can infect humans.

A British forestry consultant, Mr Robb Anderson '63, is recovering in a Singapore hospital from the disease which he is believed to have contracted in Brunei.

Mr Anderson's business partner, Mr David Marsden, said this week that the patient appears to be out of danger and gradually getting stronger.

Mr Subramaniam said leptospirosis is transmitted from carrier rodents to other animals or humans through the rodents' urine.

Dogs and cats can also pass on the disease to humans who come into contact with their infected urine.

"The source of the problem is the large number of rats in Brunei. If a dog or cat receives treatment early, it can recover," Mr Subramaniam said.

Animals suffering from leptospirosis are lethargic, go off food and their urine becomes coffee-coloured. If treatment is not received in 48-72 hours, they die.

Dogs and cats can be inoculated with a multiple vaccine by the government Veterinary Department, against leptospirosis, distemper and hardpad, the vet added.

Leptospirosis can also be fatal to humans. The head of a large Brunei store said Brunei is running alive with rats. "We put down glue traps and catch five or six rats a night. But it's a losing battle — the only answer is a mass rat-eradication programme."

A senior public health official said: "The government's pest control teams are doing all they can to control rats. We can't eradicate rats completely because they breed so rapidly."

She said a co-ordinated government effort was first needed to clean up the environment as refuse attracts rats.

Jungle clearance is driving more rats into urban areas, she said.

The official said there is also a need to control stray dogs to prevent diseases being spread.

She added that three or four cases of leptospirosis in human are reported in Brunei annually but so far none has been fatal.

CSO: 5400/4330

TUBERCULOSIS EPIDEMIC REPORTED IN VANCOUVER SKID ROAD AREA

Vancouver THE SUN in English 17 Oct 84 pp A1, A2

[Article by Kim Bolan]

[Text] A doctor specializing in tuberculosis says there is an epidemic of the disease in Vancouver's Skid Road area and warns there could be more outbreaks of the highly-contagious disease.

Dr Don Enarson said TB is 20 times more common on the downtown east side than anywhere else in the province.

And social workers in the area who have tuberculosis claim they caught it on the job because of poor office ventilation and inadequate warnings from the human resources ministry about their susceptibility.

Enarson warned there could be more outbreaks because of "a lack of awareness of the epidemic proportion" of the disease in the downtown east side.

"There is reason for a major alarm," Enarson said Tuesday. "People have forgotten there is an epidemic there."

Enarson said eight social workers have had positive reactions to TB tests and in one case the worker is contagious. He also confirmed that poor ventilation could increase the chances of contracting TB if a contagious person is near.

TB--once one of the most widespread fatal diseases--can be transmitted by close contact with someone carrying the germs, though not all those who have positive reactions to a test develop the full infectious disease.

Symptoms of the disease are prolonged coughing, fever, weight loss and heavy perspiration. It can take years to fully recover.

Arlene Jackson, 40, a worker at the human resources ministry's Main and Powell office, has been housebound since Aug 8, the day a doctor told her she was seriously ill with a contagious case of TB.

"The doctor figures I've probably had it since last spring," Jackson said Tuesday. "But I only decided to get tested when I heard that other social workers in the area were already on medication because their TB tests were positive."

Jackson blames her working conditions for contracting the disease because it spreads more easily in a poorly-ventilated area.

"There's an epidemic on the streets. Many of my clients have been hospitalized for tuberculosis, but I never dreamed I would get it," said Jackson, who's been with the ministry for 10 years. "People in the area are poor. They don't eat properly."

The air-conditioning system at 180 Main recirculates the air in the office, but there is no fresh air or windows that can be opened, she said.

"Workers at other agencies dealing with the same people aren't getting sick because they can open a window and let in some fresh air," she said.

Before Jackson returns to work, which could be any time within the next three months depending on her recovery, she wants human resources officials to improve conditions in area offices.

"I'm speaking on behalf of many of the social workers in the area," Jackson said. "We want two things. Windows that we can open and an education program on TB for people working in the area."

Jackson has worked at her present location since 1978. This is the first time illness has forced her into isolation, away from co-workers and friends.

She coughs a lot, is usually tired and sometimes gets nauseated from the four different medications she must take for a full year--the normal treatment for the disease now.

"I'm lucky because I have roommates who shop for me and friends come around and do my laundry, but still I've been trapped inside," she said.

So far, her roommates have not gotten sick. One is getting regular TB tests and the other was innoculated against TB as a child.

Deputy human resources minister John Noble said Tuesday that he'd just heard about the outbreak and that public health officials are looking into office conditions.

"Obviously, we're very concerned about the health of our employees," Noble said. "But there's no way to tell for sure if the disease was picked up in our buildings."

He said he is not medically qualified to comment on the frequency of TB in the area, but that he will be hearing the report of investigators Thursday.

Human Resources Minister Grace McCarthy could not be reached for comment.

Jackson said no one in the ministry has ever proposed that workers on the downtown east side get TB vaccinations.

Enarson said vaccinations used to be available for people who were in contact with TB-ridden areas, but that ministry employees don't get them.

He said social workers are partly responsible for ignoring the risks they face.

"Some of the people who've been diagnosed as positive have refused medication," he said.

Vancouver has a commendable program for dealing with the TB problem, Enarson said. "There's a free clinic and trained health care workers."

However, he said there is a proposal before the board at Vancouver General Hospital to cut back on the TB program as a restraint measure.

"We'll have a real problem on our hands if that happens. Like venereal disease, people like to try and forget about it."

He said he can't understand why some of those that have had positive tests are refusing medication, which must be taken for a year. He said the side effects from the drugs are less serious than contracting a contagious case of TB.

But Judy Young, another social worker who started taking the medication four weeks ago when her test came back positive, said the medication has made her "feel horrendous."

"I've been coming home from work and crawling straight into bed," Young said. "I even had to take three days off because I got so bad. I've been nauseated and really dizzy, like a really bad flu."

CSO: 5420/9

INVESTIGATION OF NEW FORMS OF SALMONELLA REPORTED

Toronto THE SATURDAY STAR in English 27 Oct 84 pp A1, A4

[Article by Trish Crawford]

[Text] Federal health officials have launched an investigation into a possible link between antibiotics fed to farm animals and the appearance in humans of new strains of salmonella disease that resist these medicines.

As well, the Ontario government has warned medical practitioners across the province to be on the lookout for an antibiotic-resistant strain of salmonella similar to that found in eight Toronto children this past summer.

Salmonella, a highly contagious bacterial ailment associated with contaminated food, is a rapidly spreading disease in Canada—and throughout the world—with more and more cases affecting humans.

Some of the symptoms are vomiting, diarrhea and fever.

Numbers rising

In 1981, there were 12,295 reported cases in Canada, resulting in 21 deaths. The number of reported cases rose from 7,720 in 1977 to 11,170 in 1978--5,471 involving people. Last year, there were 12,690 cases, 9,452 involving humans.

Salmonella epidemics this year resulted in the deaths of two residents of a Woodsotock home for the mentally retarded and two more deaths at Peterborough Civic Hospital.

The federal investigation was launched by Dr Bert Mitchell, director of the bureau of veterinary drugs for Canada Health and Welfare. It will look at the whole issue of using drugs such as penicillin in animal feeds to speed growth.

Overuse of antibiotics is resulting in a reduction in their efficiency against disease, Mitchell said in an interview.

New diseases spring up that are resistant to them, he said, and the idea that people can catch these super diseases from animals has grave public health implications.

However, Mitchell added: "While there are some concerns, we've not been able to get our finger on the evidence (that the resistance is caused by feeds)."

The veterinarians he assigned to investigate the issue appear to be learning that there is no direct link proved--yet. "Antibiotics have been given orally to prevent disease and promote growth for 30 years and for 25 of that it has been controversial."

Would move swiftly

If it turned out that animals are passing on antibiotic-resistant diseases to people, Mitchell said, he would move swiftly to curb drugs in feed. "We'd have no hesitation in recommending regulations to control the problem."

The federal investigation follows a report by scientists at the Atlanta Centres for Disease Control in the United States that for the first time claims a definite connection between animals given antibiotics, the evolution of a salmonella immune to the effects of those medicines, and the transmission of that disease to people.

Dr Scott Holmberg, the epidemiologist who headed the Atlanta team said in an interview that poor handling of food, commonly cited as the chief cause of salmonella in humans, is a classic case of "blaming the victim."

"A lot of the objections are just hand-waving, assigning the blame for salmonella infections on the victim," he said. The blame really belongs with the "less than prudent" use of antibiotics, he said.

The U.S. investigation was sparked by an outbreak of an antibiotic-resistant salmonella disease among people in four states. The identical twin of that rare strain was traced to a herd of cattle in South Dakota.

The sick people had eaten hamburger made from those slaughtered animals which had been given feed laced with the antibiotic chlotetracycline. Eighteen people became seriously ill and one died.

Be on alert

The growing concern about antibiotics comes as doctors and laboratory workers throughout Ontario also have been warned to be on the alert for new strains of salmonella that are resistant to a wide variety of antibiotics.

Officials with the Ontario Ministry of Health issued the warning following the discovery this summer of eight Toronto children who contracted salmonella that was found to be resistant to the so-called miracle drugs.

In the Ontario Disease Surveillance Report issued July 29, ministry epidemiologist Dr Jackie Carlson called on all medical practitioners to monitor for a similar occurrence "because of the serious clinical implications" of the Toronto cases.

Carlson said the source of the salmonella contracted by the Toronto children is so far unknown. What the researchers do know is that one of the children had recently returned from India.

Only one of the Toronto children was put in hospital and all have recovered, she said.

Carlson stressed that the current alert is no cause for panic. Thousands of cases of salmonella are reported each year and very few need treatment.

Controversy has swirled around the Atlanta report since its publication last month in the New England Journal of Medicine.

Proves nothing

The multi-million-dollar drug industry, as well as veterinarians and some medical doctors, have criticized the findings.

Lyle Rea, a veterinarian who heads the Canada Health Institute, an organization of pharmaceutical companies that supply the agriculture industry, said the Atlanta study proves nothing.

He admitted his membership had a vested interest in maintaining the use of antibiotics in feed but said they didn't want people to become sick either.

More than 35 million pounds of antibiotics are produced yearly in North America; half of that amount is for animals both in the form of direct medicine and feed additives.

"If the industry wasn't concerned, they'd be short-sighted," said Rea. "Disease resistance to antibiotics in people or animals is something we all have to be concerned about."

He said he felt the issue was being "blown out of proportion. Penicillin has been widely used since 1940 and is still highly effective for many conditions."

However, Dr Stuart Levy of the Tufts University School of Medicine in Boston is alarmed "by the newly emerging resistant organisms."

In his editorial, Playing Antibiotic Pool: time to tally the score, in the New England Journal of Medicine, he writes:

"Surely, the time has come to stop gambling with antibiotics. Although their use as feed additives had a major role in advancing livestock production in the past, the consequences of this practice are now too evident to overlook."

He concludes that antibiotics shouldn't be used as feed additives but as the powerful medicines they are.

"The clarion is strong and clear. We must reserve these valuable resources for fighting microbial disease."

CSO: 5420/9

RECALL OF POLIO VACCINE SHOWING POTENCY LOSS REPORTED

Ottawa THE CITIZEN in English 6 Nov 84 p A13

[Article by Bruce Ward]

[Text] Three lots of polio vaccine distributed to doctors and health-care facilities during the past 20 months are being recalled after showing a loss of potency.

Connaught Laboratories Ltd of Toronto said in a news release the vaccine is not a health hazard. The recall was ordered after one component of the vaccine showed a decline in effectiveness during routine tests. A spokesman for the company said about 164,000 doses of the vaccine have been distributed across Canada and the United States. Connaught has sent letters to distributors asking that the vaccine be returned to the company.

All doctors known to have received the vaccine have also been sent letters recommending that patients who have received primary injections of the drug since Feb 3, 1983 come back for booster shots.

"There is no way of knowing how many doses are still on the shelves," the spokesman said. "And we don't know how many people in Ottawa or other cities got injections. That's why we notify all the distributors and doctors."

Booster doses containing stabilized vaccine will be available within three weeks, he said.

A stabilizer has been added to new lots of the vaccine to correct the decline of potency which was noticed during routine tests.

"Only one component of the vaccine showed a loss but that's enough to take it off the market," the spokesman said.

He added that it is extremely unlikely that children had received the faulty vaccine.

"Kids almost always get 'quads' or ' combos's' in which the polio component is mixed with diphtheria and tetanus components and others to protect them against all those diseases."

The loss of potency has not occurred in the combined vaccines, he said.

"Most of the people who got these shots would be those travelling to Third World countries that require a polio shot. They are the people we want to contact."

People who received the defective vaccine as a booster are adequately immunized.

CSO: 5420/9

COLOMBIA

MALARIA CASES INCREASE AS PREVENTIVE RESOURCES DWINDLE

Bogota EL TIEMPO in Spanish 6 Nov 84 p 8-A

[Text] More than 1.5 million Colombians who live in jungle and tropical areas below an altitude of 1,500 meters are liable to contract malaria, while at the same time a larger number of afflicted persons are being reported every day, and there are less resources to control the disease. The problem of malaria in Latin America is continually increasing, in view of the fact that the economic, chemical and biological means used to combat it have decreased dramatically.

The regions with the greatest problem are the very ones where guerrillas are active in Colombia. A total of 1,745,510 persons who live in Magdalena Medio, Catatumbo, Arauca, Ariari, Alto Vaupes, Guaviare, Caqueta and Putumayo are the ones most apt to contract malaria; for the same reason the health and control services needed to prevent the population from being infested with this terrible disease do not reach these areas with the desired effectiveness.

Disease Spreads, and Economic Resources Dwindle

In 1983, reported a new cases of malaria totalled 105,000, while in the previous year 78,601 were recorded. While the disease is on the increase, the resources which the Colombian government is allotting for the application of insecticides (DDT) and for seeking out cases in the areas with the greatest incidence of malaria are being cut dramatically, according to the opinion of officials from the Malaria Eradication Service (SEM), an institution attached to the Ministry of Health. As long as the environmental conditions typical of the humid Colombian jungles exist, the transmitting agent of malaria (the anopheles mosquito) and the germ itself (plasmodium) will also exist. Economic and social progress is the only thing which will be able to finally eradicate this disease, which so afflicts the countries of the Third World.

The peasant who cultivates the land in these areas, between sea level and 1,500 meters altitude, is aware of how his strength decreases day by day because of his affliction with these severe fevers which the disease produces. Without any doubt, present-day medicine has the means to "cure" the patient quickly when the disease strikes, but if this worker remains living in the same conditions, the disease will be chronic, and even fatal.

Research Progressing on Malaria Immunization

In the framework of the international symposium "Health Perspectives for the Year 2000," organized by the department of immunology of the San Juan de Dios Hospital, which was sponsored by the president of the Republic of Colombia, there will be a discussion of the advances made in the research of Dr Ruth Nussenzweig of the University of New York on immunization against malaria.

Undoubtedly, the doctors, biologists, microbiologists and bacteriologists who are attending the event will share these experiments of Dr Nussenzweig. In the same way, her methods of research will be able to be compared with those now being carried on by Colombian scientists who are involved in research on this vaccine, which would be able to lessen the harmful effects of this disease on many working men in countries of the Third World.

8131
CSO: 5400/2009

GUINEA-BISSAU

BRIEFS

RABIES DEATH--Binta Djalo, a 10-year old girl who lives in the Pitche sector, died recently in the Gabu Regional Hospital, the victim of a bite from a rabid dog. In the city of Gabu, two dogs were already killed by their owners, one shot and the other clubbed to death, after symptoms of rabies were detected. According to the head of the Veterinarian Services in the region, comrade Roberto Sam Nahs, there is a lot of rabies vaccine but it is in poor condition. This means that an alternative measure must be employed, i.e., the dogs throughout the region must be eliminated by poising, to stop the disease from spreading. On another front, a team from the regional Veterinarian Services, headed by the director went to the village of Canjadudy to vaccinate the cattle in the area against trypanosomiasis, using [word illegible] products. [Text] [Bissau NO PINTCHA in Portuguese 17 Oct 84 p 3] 9805

CSO: 5400/23

RISE IN MALARIA CASES REPORTEDLY IS WIDESPREAD

Checks at Mining Sites

Georgetown GUYANA CHRONICLE in English 5 Nov 84 p 1

[Text] A two-man team from the Ministry of Health and Public Welfare, last Thursday left Georgetown for Essequibo, to carry out malaria checks and institute preventative procedures on mining locations.

The visit is a result of talks with miners at a meeting of the Gold and Diamond Miners' Association, two Sundays ago, where personnel from the Ministry offered to go on location, if miners provided transportation.

The visit was prompted after miners complained, at the meeting, about the incidence of malaria on their locations.

The discussion included a look at preventative measures such as the re-introduction of medicated salt on mining locations.

Pan American Health Organisation representative, Dr. Michael Nathan, who participated in the meeting, however, told the Chronicle, last Friday, that after consideration, the re-introduction of medicated salt has been deemed not feasible.

Dr. Nathan is PAHO's adviser to the malaria section at the Ministry of Health and Public Welfare.

He noted that the focus for preventative measures is, at the moment, on the North West District, where efforts are being made to strengthen the malaria programme and to resume spraying operations and case detections.

Situation in Northwest

Georgetown GUYANA CHRONICLE in English 6 Nov 84 pp 1, 4

[Text] MABARUMA, (GNA)--Recent figures show that there has been a sharp rise in cases of malaria in the major communities in Barima/Waini Region.

According to Dr. Mike Nathan a Pan-American Health Organisation/World Health Organisation (PAHO/WHO) consultant attached to the Health Ministry who recently visited the region with Vibert Stroom, a senior inspector in the Malaria Division, at September last 823 cases were identified while for the corresponding time last year there were 487 cases.

However, the Ministry will be intensifying operations throughout the region.

According to Stroom, a team left Georgetown Sunday to assist the North West unit with a programme which will include the spraying of houses and yards and mosquito infested areas, smearing and treatment of all suspected cases. A programme of training of residents to help effect the project will also be launched.

He also mentioned that samples will be determined at various centres in the region instead of their being sent to Georgetown.

The officials also explained that while there is no surety that the Arakaka community has registered the highest rise there have been a comparatively marked increase of suspected cases because of the influx of new settlers to that area.

A malaria centre would be set up at the Eclipse Falls hydro-power project site in the Barima River, it was disclosed.

Additional Reportage

Georgetown CATHOLIC STANDARD in English 11 Nov 84-p 2

[Text]

"ALL INDICATIONS are that the disease (malaria) is on the increase and will spread further with the reduction in control work, due to lack of funds".

This observation, made by the Catholic Standard in its issue of Jan. 15, 1984, has been proven correct by available statistics.

The total number of malaria cases reported to Sep. 1984, is 1,860. Last year cases reported for the same period were 1,380.

The increase of 500 cases is held to be conservative, as there has been a reduction in data

gathering and compilation of statistics due to budget cuts.

The area with the highest incidence is the North West District. Reported cases for the Jan. to Sep. period have jumped from roughly 100 in 1982 to 480 in 1983 to 820 in 1984.

These cases are mostly the less virulent type of malaria, vivax.

The most alarming reports of an increase in cases comes from the Rupununi where the most dangerous type of malaria, Plasmodium Falciparum, has become far more prevalent:

This type, which is often fatal,

causes cerebral damage, and this has risen from about 13 per cent of the reported cases over the past three years to 50 per cent of this year's 510 cases.

The Mazaruni/Cuyuni/Potaro region is another area affected, with about 230 cases reported to the end of Sep.

Miners have been complaining about the incidence of the disease and Government is reported to be sending in a team to carry out DDT spraying, case detection and drug dispensing.

A team is also reported to be going into the Matthew's Ridge area to carry out a similar programme.

The Malaria Control Programme in the Rupununi has been greatly hampered by lack of transportation for the programme workers.

A gift of three long-wheel-base Toyota land cruisers from the Canadian International Development Agency (CIDA), purchased in Brazil, is now being awaited.

Budget cuts and lack of certain drugs are expected to continue to hamper efforts to control the disease in the hinterland.

CSO: 5440/017

BRIEFS

MALARIA ON RISE--Calcutta, Nov 12--Malaria germs have been detected in 19,991 of the 68,000 tested blood samples collected from the city and its suburbs since January. Also, falciparum, a malignant malaria germ, was present in 308 of the samples tested, Mr Ramnarayan Goswami, West Bengal minister for health, said here today. In view of this alarming rise in the incidence of the disease, the government would launch an anti-malaria drive in the city, particularly in the slums, from December 10 to 21, Mr Goswami said. [Text] [Calcutta THE TELEGRAPH in English 13 Nov 84 p 1]

MORE ENCEPHALITIS REPORTED--The death toll from encephalitis has risen to 644 in the Burdwan, Bankura, Hooghly and Birbhum districts according to reports received at Writers' Buildings till Tuesday. A spokesman of the Health Department claimed on Wednesday that the number of attacks was going down. The spokesman said 295 people had died in Burdwan out of a total of 625 attacks. There were 43 deaths out of 164 attacks in Hooghly, 103 deaths of 226 attacks in Bankura and 203 deaths out of 490 attacks in Birbhum. The spokesman said the disease was first reported in Burdwan in early October. It spread to other districts almost simultaneously. [Text] [Calcutta THE STATESMAN in English 24 Nov 84 p 13]

MALARIA CONTROL PANEL--Calcutta, Nov 26--A sub-committee has recently been formed comprising representatives of the government of India, the state government and the Calcutta Municipal Corporation (CMC) to combat the "increasing incidence of malaria in the city," a spokesman of CMC said here today. The committee will recommend steps to prevent the spread of the disease and review the progress of work every month. According to a survey conducted by the health department of CMC, 19,991 cases of malaria have been reported till September against 19,389 last year. Most of the cases were reported from the southern part of the city and some parts of central Calcutta. Areas on both sides of Metro Railway starting from Tollygunge to Ganesh Chandra Avenue have been described in the report as the "breeding place for the mosquitoes." [Text] [Calcutta THE TELEGRAPH in English 27 Nov 84 p 5]

CSO: 5450/0053

INDONESIA

BRIEFS

AMYOTROPHIC LATERAL SCLEROSIS--JAKARTA--A rare disease has killed 100 people in two parts of the Merauke regency in south Irian Jaya, the Antara news agency reported yesterday. Provincial health service chief Dr Susilo Suryosembodo was quoted as saying the cause of the disease, referred to as amyotrophic lateral sclerosis, was still unknown. Officials estimated that about 13 per cent of people in the Kepi and Bade sub-districts of Merauke regency had been afflicted. [Text] [Port Moresby PAPUA NEW GUINEA POST COURIER in English 4 Dec 84 p 6]

CSO: 5400/4334

REVIEW OF PROBLEMS BESETTING PUBLIC HEALTH SERVICES

Kingston THE DAILY GLEANER in English 26 Nov 84 p 8

[Article by Carl Stone]

[Text]

AS MANY OTHERS HAVE pointed out in the ongoing debate about the health services, Jamaica has developed an excellent health service that has served the public well over the years. By Third World standards, we have a healthy population and the quality of our health services has played an important role in the post-war years in helping us attain this improved quality of life for the majority of our people.

All of this achievement is in fact threatened by financial and budgetary pressures and the crisis in foreign exchange.

I read the excellent piece Dr. Lampart wrote recently in the Sunday Gleaner setting out the rationale for the changes taking place in the apparent cut back in hospital services.

VERY GOOD MOVE

He has quite clearly and correctly pointed out that the closure of smaller hospitals and the diversion of that health care load to the larger and better equipped hospitals was a good move and should have been carried out long ago.

Dr. Lampart characterised those who were complaining about these moves as being emotional, and his commentary was intended to set them straight on the clear rationalisations for the new policies.

It seems to me, however, that there are some unanswered issues which Dr. Lampart's commentary has not addressed nor has the Minister of Health addressed them.

The first question relates to whether the level of personnel and equipment and supplies for adequate health care is in fact available at these larger health facilities. They are going to be taking over the health care load of the smaller facilities destined for closure, or already closed.

If one were to judge from the impact of budget cuts on hospitals, like the UWI, and their consequent impaired capacity to handle even the health care load before rationalisation, there must surely be some great doubts about whether adequate funds are being allocated to ensure that these larger health facilities across the island have what is needed to cope with the increased work load.

INCREASED BUDGET NEEDED

Health care involves a larger foreign exchange component for medical supplies. A country strapped for foreign exchange and facing massive devaluations that drive up the Jamaica dollar costs of medical supplies should be increasing the health budget, not decreasing it as has been happening under the current "disaster dispensation" of the IMF.

There is a racist side to this issue that worries me. My University colleague in the Senate, Dr. Keith Worrel, has more than once expressed a similar view in recent times. Some of the overseas experts who come here are constantly expressing the view that we are living above our means.

At least two of them whom I have spoken to recently have taken the view that we are too lavish in our social expenditure which, of course, includes health expenditure. I was certainly left with the feeling that some of these foreign experts who come from countries where health and other services are heavily subsidised by the state take exception to the degree to which this small Third World country has been able to achieve levels of life expectancy and infant mortality that compare favourably with industrial countries like the United States.

EXCESSIVE SPENDING?

But are we in fact spending excessively on health?

Let us look at some figures.

World Bank data for 1978 tell us that total per capita health expenditure was as follows for the countries listed below.

Countries with per capita incomes of more than \$U.S.1,500	Per capita health spending (\$U.S.) 1978
Venezuela.....	\$83
Argentina.....	\$70
Barbados	\$70
Panama.....	\$60
Trinidad & Tobago	\$63
Incomes of \$900-\$1,500	
Cuba.....	\$41
Jamaica	\$34
Chile	\$32
Guatemala	\$7
Incomes of \$600-\$899	
Dominican Republic.....	\$12
Bolivia	\$8
Colombia	\$11
El Salvador	\$9
Incomes of less than \$600	
Haiti	\$1

The figures show that the amount spent on health tends to relate directly to per capita incomes, although some countries spend more or less than the trend in their income group.

The amount that we spent on health in 1978 was not out of line with other countries in that income group. Socialist Cuba spends the most in that group while the right wing military regime of Guatemala spends at a level equivalent to that of a much poorer country.

Since we are not spending above our means in health, why is health expenditure being cut back by IMF pressure unless the intention of these international pressures is to bring us down to the level of countries like Guatemala that neglect their people.

DEMOCRATIC TRADITION

But countries like Guatemala neglect the people because they do not have a tradition of democratic rule and a system of policy management which tries to stretch public resources to meet the social needs of the majority of their people.

Any pressures to push us in the direction of a Guatemala are pressures that can only be designed to force us out of our democratic tradition as no such tradition can be sustained if it fails to deal with the social needs of its citizens.

The rationalisation in health services is fine and good; but are we insisting on a level of commitment to health that provides enough money to adequately sustain good quality health at our larger health facilities?

To date, we have survived the budget cuts and austerity mainly because some of our health professionals are totally dedicated to the work they have to do and continue to deal with the daily pressures for totally inadequate monetary rewards.

At UWI, there are nurses who have continued to do extra work for which they used to be paid overtime but are now receiving no pay because of budget cuts. In other health facilities across the island, dedicated and patriotic nurses and some doctors are keeping our health services intact.

TREMENDOUS GRATITUDE

We all owe them a tremendous debt of gratitude. But unless we increase the Jamaica dollar commitment to health to keep pace with the increased supply costs, due to our currency devaluations, the health system will crumble regardless of rationalisation and we will be retreating fast toward the kind of neglect of people's needs that one finds in fascist countries like Guatemala.

Will Dr. Lampart, or the Minister or someone else who knows the facts, assure the nation that this is not happening. If they cannot, then those who are concerned cannot be written off as merely being victims of emotionalism.

My reading of the facts tells me that the fears about the crisis in health are real and not just the figment of either hysteria, political malice or emotionalism:

Can we have some answers please?

CSO: 5440/019

JAMAICA

BRIEFS

SECOND TYPHOID CASE--Benbow--A second case of typhoid fever has been reported in the Blackstonedge area. A little girl, a student of the St. George's All Age School and living at Castle Kelly is reported to have had the disease. The first victim was also a student of the school and living at Castle Kelly. The little girl was admitted at the St. Ann's Bay Hospital recently. Health personnel from St. Anne are now trying to find out the carrier of the fever. They have been checking out the water supply, sanitary conveniences in and around Blackstonedge. It is about the third time in recent years that Typhoid fever has broken out in and around Blackstonedge. Everything is being done to prevent an outbreak of typhoid in these areas. And the school is also doing its parts in to contain the disease. A meeting was held recently with over 80 parents. The meeting was addressed by the Principal of the school Mrs. I. Slack who appealed to parents to be healthy and clean in everything so as to prevent an outbreak of typhoid in the area. There has been no public health inspector in the Blackstonedge area for years now.
[Text] [Kingston THE DAILY GLEANER in English 21 Nov 84 p 5]

CSO: 5440/018

LAOS

BRIEFS

SAVANNAKHET MALARIA WORK--Eleven medical cadres appointed as mobile medics by the Savannakhet provincial public health office went to the Keng Kabao port construction site on 10 October to do health checkups and distribute medicine to the workers. They also sprayed DDT to suppress disease-carrying mosquitos in the area. This team of mobile medics brought with them more than 3,400 kilograms of DDT and a quantity of anti-malaria tablets in their specialized task. The work was carried out for one-half a month until they finished. In the actual work, aside from doing health checks and distributing disease-prevention medicine to the workers and spraying around the houses and offices at the Keng Kabao port construction site, they also did health checks and distributed medicine to the people and sprayed for the people to suppress malarial mosquitos in the areas of Sebang Fai and Tha Sano cantons of Outhoumphon District, near the Keng Kabao port construction unit. This was done in order to halt and wipe out malaria among the workers and the people step-by-step and so that everyone will have good health to take part in the task of protecting the nation, making it stronger, step-by-step. [Text] [Vientiane KHAOSAN PATHET LAO in Lao 26 Oct 84 pp A7, 8]

CSO: 5400/4340

THREAT OF AIDS PROMPTS LIMITING MEASURES

Government Measures Announced

Christchurch THE PRESS in English 17 Nov 84 p 1

[Article by Oliver Riddell]

[Text] The Government has announced measures aimed at limiting the spread of A.I.D.S. through blood or blood products in New Zealand.

There are about 6500 confirmed sufferers of A.I.D.S. (acquired immune deficiency syndrome) world-wide. It attacks the body's immune response system and there is no cure.

"We have to move quickly to make sure the disease does not spread here," said the Minister of Health, Dr Bassett, yesterday.

Already there had been several patients with A.I.D.S. living in New Zealand, but they had contracted the disease overseas, he said.

As a result of the new measures, blood transfusion centres will now have to select their donors more carefully.

All donations of blood will be tested for teh HTLV3 antibody, which shows if the donor has been in contact with A.I.D.S.

Testing for this antibody, and another disease which can be transmitted through blood transfusion, hepatitis B, will be done only at the six regional blood transfusion laboratories.

Dr Bassett said the Government would send two scientific officers to Australia to gain expertise in HTLV 3 antibody-testing.

A New Zealand immunohaematologist, Dr Gordon Whyte, of Christchurch, would be sent to the United States to find out about the latest developments in all aspects of A.I.D.S.

The Auckland Blood Transfusion Unit would expand its production of Factor VIII concentrate and would start producing Factor IX, Dr Bassett said.

These blood products were needed by haemophiliacs and some other blood patients.

Doing this would mean that the people who were most at risk of developing A.I.D.S. from blood transfusion would be protected, he said.

New Zealand's supply of Factors VIII and IX came from the Commonwealth Serum Laboratories in Melbourne. All these imports would stop unless the concentrates were made from New Zealand plasma only, and were heat-treated.

Concentrates from the Australian laboratories already in New Zealand would be withdrawn to the regional blood transfusion centres, and used only in essential situations.

Dr Bassett has also asked for cost estimates for putting the blood transfusion service recording system on computer.

These steps could not be taken overnight, he said. Some measures, such as the production of Factors VIII and IX, might take months.

"But we are doing our best for the safety of patients who need blood transfusions or blood products," Dr Bassett said.

Cooperation With Measures Urged

Christchurch THE PRESS in English 19 Nov 84 p 20

[Editorial: "Keeping A.I.D.S. Out of N.Z."]

[Text]

The Government is taking sensible measures to control the risk that people in New Zealand may be infected with the acquired immune deficiency syndrome, known as A.I.D.S. At least three babies have died in Queensland as a result of receiving transfusions of blood contaminated with the A.I.D.S. virus. The Queensland Government on Thursday passed legislation that imposes stiff penalties on blood donors who knowingly give misleading information about whether they are suitable people to give blood. Other Australian states may pass similar laws, although Queensland's swift action appears to have been a response to a highly emotional situation.

Rather than resort to legislation that may be difficult to apply, New Zealand hopes to stop the spread of A.I.D.S. here by careful testing of blood donors, and by publicity designed to discourage people who may be A.I.D.S. carriers from giving blood. The A.I.D.S. condition first appeared several years ago on the West Coast of the United States. Since then more than 6000 people, most of them in the United States, have been found to be suffering from A.I.D.S. To begin with, almost all of them were male

contaminated are brought into New Zealand. But to prevent an A.I.D.S. carrier from unwittingly giving blood for transfusions may be more difficult. Little is known about the A.I.D.S. virus in spite of intensive research in North America and Western Europe. Until adequate tests are available here to detect the virus in people who have not developed obvious symptoms, the most effective way to protect the community is a blanket ban on accepting blood from male donors who have had homosexual relationships.

To be effective, such a ban depends on the honesty of potential blood donors. Almost all those people who may be at risk as A.I.D.S. carriers will certainly co-operate in the unhappy circumstances that require them not to offer the public service of being blood donors. But, as Australian experience has shown, one unwitting donor who carries the A.I.D.S. virus may be sufficient to cause a series of tragedies. That is why New Zealand needs to seek urgent help in developing effective ways to screen blood donors.

New Zealand's isolation works in this country's favour in attempts to keep this an A.I.D.S.-free country. The success of the Ministry of Agriculture in keeping New Zealand free from certain animal diseases — most notably foot-and-mouth disease — is well appreciated. A similar effort needs to be made to prevent the spread, if not the entry, of A.I.D.S. from people whose activities abroad make them carriers or victims of the virus. Success in the long run will depend on adequate tests for the condition being available, and being applied. In the meantime, New Zealand will have to continue to depend on the honesty and good sense of potential blood donors.

homosexuals. More recently, at least 7 per cent of A.I.D.S. victims in the United States have been women. No cure has been found. The manner in which the disease is spread is not fully understood. More than half the cases are fatal.

A.I.D.S. cases have been found in New Zealand, but the condition so far appears always to have been contracted by homosexual contact abroad. No cases have occurred here as a result of importing contaminated blood. The new measures announced last week by the Minister of Health, Dr Bassett, should ensure that no blood products likely to be

CSO: 5400/4331

THREE UNITS TO BE BUILT IN SOUTH FOR STUDY, DIAGNOSIS

Kaduna NEW NIGERIAN in English 9 Nov 84 p 8

[Article by Dupe Motojehi]

[Text]

THREE epidemiological units proposed to be built in parts of the southern states to monitor and diagnose cases of diseases by the Nigeria Institute of Trypanosomiasis Research (NITR) Kaduna since 1976 are still on the drawing board.

Two of the units to be located in Ado Ekiti and Kaima were to monitor the spread of diseases such as sleeping sickness and river blindness and to effect methods of eradicating them.

But up till now, neither the three nor the modified proposals to extend NITR services to all the 19 states by establishing substations have been effected.

The Director of the Institute, Alhaji Yakubu Magaji, told the New Nigerian in Kaduna that there was no money for such ventures, adding that for now the idea has been shelved.

NITR has only nine epidemiological units, all located in various parts of the north according to the director even though he said cases of river blindness and sleeping sickness have been reported in some parts of the south.

The units in the north are located in Kano, Bauchi, Bida, Wukari, Gboko, Kafanchan, Akwanga, Barkin Ladi and Zaria.

Most of them, he said, are headed by a principal rural superintendent who are working in the surrounding hospitals helping to diagnose cases of diseases in the environ.

CSO: 5400/41

RIVER BLINDNESS THREATENS SOME KADUNA TOWNS

Kaduna THE DEMOCRAT WEEKLY in English 4 Nov 84 pp 1, 12

[Article by Daniel Tifato]

[Text]

KADUNA — If urgent steps are not taken, many people in Kaduna State may soon suffer from river blindness.

Investigations have shown that several parts of the state especially Saminaka and Kachia Local Government areas are affected. A sizeable proportion of adult population has already gone blind.

Though the affected persons could not categorically say what caused their blindness, some of them interviewed attributed it to a local fly called "Kuskuru". Others felt their drinking water was infested.

Kadaru, a village situated between Pambeua and Saminaka on the Kaduna—Jos Road, is one of the villages where almost half of the population has gone blind. Most adults have turned to begging.

Malam Zubairu Usman 45, lost his sight two years ago. He depends on his wife and two children for his livelihood though he confessed that he begs sometimes.

He said that he was working on his farm when his eyes started itching. "Within a short time, the whole place was hazy to me and I could not see. I was brought home

and taken to Kaduna for treatment. After the treatment I received at a Kaduna Chemist, I got blind completely. When Governor Usman Mu'azu came here about four months ago, we were told that drugs would soon be sent to us but since then nothing has happened."

Twenty years ago, Malam Yusufu Maikudi, 65 could see and carry out his normal duties but he has lost his sight and now depends on charity for his survival. "When my eyes started itching", he recalled, "I never thought it would lead to my becoming blind. I have used hospital drugs and native herbs without improvement. I now leave my fate to Allah."

According to the Chief of Kadaru, Alhaji Tanimu Balarabe, many visiting government officials and experts have promised assistance in form of drugs but none had been received. He said that between July and October of every year, flies locally known as "Kuskuru" become rampant.

During this peak period, said the Chief, people are forced to put on long trousers and long sleeved shirts or sweaters, to prevent being bitten. He complained that

affected persons sent to Kaduna on government request for examination usually came back untreated. He said that a major side effect of river blindness is constant headache.

Investigations revealed that worst hit areas are Galadimawa, Kadaru, Yarkasuwa and Maigamo, all in Saminaka local government and the areas around Kufana in Kachia local government.

CSO: 54000/41

BRIEFS

JAUNDICE VACCINE DEVELOPED LOCALLY--A SPECIAL vaccine, Hepatitis B, has been developed in Nigeria for the cure of patients with jaundice. Similarly, vaccines for livestock are also being developed at the Veterinary Institute, Vom, near Jos, Plateau State. The Minister of Information, Social Development, Youth, Sports and Culture, Group Captain Emeka Omeruah, made this known at a press briefing in Lagos. He stated that Nigerian plants had already made their contribution to science by adding curats to the list of useful drugs for pre-surgical use. Group Captain Omeruah pointed out that research was continuing into the refinement of the active ingredients of other Nigerian plants so that they could be dispensed in tablets, syrups, injections and not in the old traditional concoctions. [Text] [Lagos DAILY TIMES in English 6 Nov 84 p 17]

ROTARY GIFT FOR POLIO--A N2.31 million polio vaccine gift will be made to the Federal Military Government from the Rotary International. Disclosing this to the Plateau State Military Governor, Navy Captain Samuel Atukum, the district governor of the Rotary Club District 912, Mr. Vonjen Gambo Sanda, said an agreement to that effect had been signed between the club and the Federal Ministry of Health. [Excerpt] [Lagos DAILY TIMES in English 22 Nov 84 p 12]

DEATHS FROM IMMUNIZATION LACK--ABOUT 25 to 30 children die daily in Bendel State for lack of immunisation, an official of the United Nations International Children Emergency Fund (UNICEF), has said. Mr. Richard Reid, (UNICEF) representative in Nigeria, disclosed this in Benin recently, when he called on the State Governor, Brigadier J.T. Useni. Mr. Reid named the killer diseases as measles, smallpox, chickenpox, whooping cough, tetanus, and cholera. He said that UNICEF was embarking on an expanded programme on immunisation (EPI) to check the death rate among children. He also disclosed that Nigeria has been chosen as one of the three countries in Africa, from where the war to exterminate the killer diseases would be executed. Replying, Governor Useni assured UNICEF of the state government's co-operation in the fight against the killer diseases. He said that the government has given the EPI committee in the state N15,000 to help in the crusade. Governor Useni also thanked UNICEF for the role it played in helping the Federal Government to procure drugs at short notice. He disclosed that the state branch of EPI would be launched on December 14. [Text] [Lagos DAILY TIMES in English 24 Nov 84 p 13]

VENEREAL DISEASES--ABOUT 2,000 cases of sexually transmitted diseases (STD) were recorded since last year in Lagos, a guest lecturer at a programme on

the control of the diseases, Prof. Owolabi Somorin, said in Lagos yesterday. Prof. Somorin said that the figure, which was based on data collected from the Lagos General Hospital, private commercial laboratories and Lagos University Teaching Hospital (LUTH), also revealed that some of the reported cases were syphilis and gonorrhoea. The lecturer, who is also the national chairman of the STD Control Committee, disclosed that the diseases were common with young adults between 20 and 29 years and identified hotels in Idioro and Lawanson areas of the state as fertile breeding ground for such infection. He said that improper treatment, promiscuity, homosexuality, prostitution, lack of sex education in schools, poverty and indiscipline among the youth were among causes of the widespread of the STD. He said that STD could be contacted at parties, offices, and from marital and extramarital activities, adding that a fully staffed and equipped STD health care delivery unit should be established in the state to ensure confidentiality in the management of the diseases. Also speaking on the occasion, Dr. Akanni Shorungbe, said that gonorrhoea was rated as second to malaria as a leading illness in adults in the 19 states. Dr. Shorungbe, who was speaking on behalf of the director of public health services, Dr. A. Smith, said that the study of the STD was initiated in Africa by World Health Organisation (WHO), following the alarming rate at which women and children were being infected. [Text] [Lagos DAILY TIMES in English 29 Nov 84 p 13]

GUINEA WORM EPIDEMIC--FOUR out of five persons in two Anambra local government areas suffer from guinea worm and filaria. At least 2,000 of them are now deformed in Abakaliki, Ikwo and Ishielu areas. Places affected are Izzamgbo, Mgbo, Ikwo, Ndulu, Umuota, Echara, Ndubia and Agobia-Ukwu. The epidemic is reported to have been caused by lack of rain. A victim of the guinea-worm attack, Mr. Raymound Eke of Izzamgbo said the disease is everywhere in the area, including Ebonyi River and Akadoro Stream. He said: My grandmother told us that her mother grew up to see the disease in the area". The medical officer in charge of the Mile Four Catholic General and Maternity Hospital, Abakaliki, Dr. Ikemefuna Nkaginieme, said: "Guineaworm infestation and filaria (bloody urine) are common here". They are found in muddy water which is the only source of water supply during the dry season". Asked what the hospital authorities do in addition to treating the patients, Dr. Ikemefuna said the Catholic Mission has more than four outposts for the treatment of patients and was giving the people health education. The matron of the hospital, Sister Christiana Gills, who has worked in the area for 15 years, said that at the peak of the attack more than 200 cases are treated daily. [Andy Obimah] [Text] [Lagos DAILY TIMES in English 1 Dec 84 p 24]

MALARIA ATTACKS INCREASE--THE Imo Health Commissioner, Mrs. Bridget Nwankwo has said in Oweri that malaria attacks had been on the increase in spite of the control measures taken by health institution in the country. Addressing participants at the opening of the National Malaria Control Committee meeting, Mrs Nwankwo said that statistics had shown that about 200 of every 1,000 children under the age bracket of five die of malaria yearly. Mrs Nwankwo appealed to members of the committee not to rest until they found a solution to malaria disease. Responding, the chairman of the committee, Dr Okon Ekanem, enjoined all Nigerians to take an aggressive stand against malaria, by keeping their environments and drainages clean. Delegates from the 19 states of the federation are attending the three-day meeting. [Text] [Enugu DAILY STAR in English 27 Oct 84 p 4]

MEASLES KILLS 61 CHILDREN--SIXTY-ONE children died within the last one week in Gbako Local Government area of Niger State following an outbreak of measles, the public health superintendent in the area, Malam Abdullahi Etsu, said Thursday in Minna. Malam Abdullahi told newsmen that the victims were children of between one month and five years. He said the epidemic had been checked but appealed to the state government and individuals to provide the area with more vaccines to prevent future outbreaks. Malam Abdullahi also advised the people to report the outbreak of any epidemic to the health authorities. [Text] [Kaduna NEW NIGERIAN in English 17 Nov 84 p 5]

CSO: 5400/41

PEOPLE'S REPUBLIC OF CHINA

HERPES SIMPLEX VIRUS CERVICITIS STUDIED

Beijing ZHONGHUA BINGLIXUE ZAZHI [CHINESE JOURNAL OF PATHOLOGY] in Chinese
No 1, 30 Mar 84 pp 52-55

[Article by the Coordination Group for Cervical Carcinoma Research: "An Immunologic and Morphologic Study of Herpes Simplex Virus Cervicitis"]

[Summary] In order to investigate the morbidity rate and clinical features of cytopathologic changes of cervicitis caused by herpes simplex virus type 2 in China, exfoliated cells and biopsy specimens of 85 cases of chronic cervicitis and cervical erosion were investigated cytopathologically with immunofluorescent and immunoperoxidase techniques. In some positive cases, all the observations mentioned above were not only repeated, but colposcopy, ELISA and NT assays were employed as well. The results were as follows:

1. Thirty-seven cases proved to be infected with herpes simplex virus type 2. This comprised 40 percent of the 85 cases of chronic cervicitis and cervical erosion, and showed that not only does cervicitis exist in China, but the morbidity rate of this disease is also high.
2. The cytopathologic changes of the exfoliated cells and biopsy specimens were swollen nuclei with evenly distributed pale chromatin with thickened nuclear membranes and prominent periagglutination of chromatin beneath the nuclear membrane, "ground-glass appearance of nuclei"; the appearance of binucleated or multinucleated giant cells; intranuclear inclusion bodies in infected cells; and the infiltration of large numbers of inflammatory cells.
3. The atypical clinical findings of this disease in China may be due to the difference in the infectious route, or the relative mildness of the virus infection, so the disease is much milder than that reported in other countries.
4. Because of the possible relationship between this disease and cervical cancer, infantile herpes virus encephalitis and herpes virus hepatitis, more attention should be paid to this disease in China.

9717
CSO: 5400/4118

PEOPLE'S REPUBLIC OF CHINA

MATHEMATICAL FORECAST OF INCIDENCE OF ENCEPHALITIS B

Beijing ZHONGGUO YIXUE KEXUEYUAN XUEBAO [ACTA ACADEMIAE MEDICINAE SINICAE]
in Chinese No 4, 15 Aug 84 pp 288-289

[Article by Zeng Guang [2582 0342] et al., of the Institute of Epidemiology
and Microbiology, Beijing: "Mathematical Forecast of Incidence of
Encephalitis B in a Community With an Immunization Program"]

[Summary] Relatively complete data of 17 years (1958-1964, 1972-1981) of an unnamed community with respect to incidence of encephalitis B, population of various age groups, and some meteorological factors are used in a study to formulate and verify a mathematical model for forecasting incidence of encephalitis B among the adults over 20 years of age and among the general population. Since 1970, children between ages of 1 and 10 of that community have been inoculated yearly with an encephalitis B vaccine at a rate of over 89 percent. Among 36 meteorological factors, the following four are deemed to be relevant: daylight hours of March, precipitation of March, average temperature of previous October, and relative humidity of April. Without describing the mathematical model in any detail, the paper reports that, compared with the actual occurrences, using the model, the rate of errors of the forecasts for the entire population, is only 0.75 percent (1981) to 16.31 percent (1980). The result should, therefore, be regarded as satisfactory.

6248
CSO: 5400/4107

PEOPLE'S REPUBLIC OF CHINA

EFFECT OF HBIG AND HEPATITIS B VACCINE

Beijing BEIJING YIXUEYUAN XUEBAO [JOURNAL OF BEIJING MEDICAL COLLEGE] in Chinese No 3, 18 Aug 84 pp 231-235

[Article by Feng Baifang [7458 4102 5364] et al., of Liver Diseases Research Office, People's Hospital, Beijing Medical College: "A Study on Mother-Infant Transmission and a Preliminary Observation of the Blocking Effect of HBIG and Hepatitis B Vaccine"]

[Summary] HBV infection of an infant of a HBsAg positive mother is common. A study has been carried out in the maternity ward of the hospital to observe the effect of HB vaccine and HBIG in blocking such mother-infant transmission. Since 1982, 20 HBsAg and HBeAg positive mothers and their infants have been given a combination of the vaccine and HBIG and the rate of protection of the infants is observed to be 100 percent. The rate of protection is only 85.7 percent for the group administered the vaccine only. Among the infants of the HBeAg positive mothers of the control group, 77.8 percent are found to be HBsAg positive, and 6 months later an 80-percent positive rate of anti-HBs is found among these infants. Now that HB vaccine and HBIG are being successfully produced in China, their application to block mother-infant transmission is urged by the authors to control the incidence of HBV, cirrhosis of the liver, and liver cancer among the young and to protect the health of future generations.

6248
CSO: 5400/4106

PEOPLE'S REPUBLIC OF CHINA

MOLYBDENUM ROLE IN KESHAN DISEASE PREVENTION STUDIED

Beijing DIQIU HUAXUE [GEOCHIMICA] in Chinese No 3, Sep 84 p 291

[Article by Yao Zaiyong [1202 0961 3057] and Niu Cunlong both of the Institute of Geochemistry, Chinese Academy of Sciences: "The Role of Trace Element Molybdenum in Prevention of Keshan Disease—An Experimental Study"]

[Summary] The role of trace element Mo in the prevention of Keshan disease is a new subject in environmental geochemistry. Experimental observations have shown that the natural incidence of Keshan disease has dropped obviously among inhabitants in the Keshan disease-affected areas as a result of a six-year successive spreading of ammonium molybdate in crop fields because in doing so the level of molybdenum has been enhanced in grain crops while the concentrations of nitrates and nitrites have been reduced remarkably in the environment. Experimental results demonstrate that molybdenum may play an effective role in the prevention of Keshan disease.

9717
CSO: 5400/4113

PEOPLE'S REPUBLIC OF CHINA

INFLUENZA B VIRUS ANTIBODY DETECTED IN PIGS

Beijing ZHONGGUO YIXUE KEXUEYUAN XUEBAO [ACTA ACADEMIAE MEDICINAE SINICAE]
in Chinese No 5, 15 Oct 84 pp 326-329

[Article by Guo Yuanji [6753 0337 0679], Wang Min [3769 2404] and Wang Ping
[3769 1627], et al., all of the Institute of Virology, Beijing: "Detection
of Antibody to Type B Influenza Virus in Pig Populations in China"]

[Summary] The present paper describes the detection of an antibody to the influenza B virus in pig populations in Guizhou, China. Results suggest that pigs could be a natural host for all types of influenza viruses and a few pigs might be infected with two different types or subtypes of influenza viruses. The infection rate in pigs is different for different types or subtypes. The infection rate of H3N2 is about 14 percent and that of types B and C about 1 percent. No antibody was detected for strains having disappeared among human populations. Only H3N2 viruses were isolated from 2.5 percent of pig lungs and trachea, with all isolates having been obtained in winter and spring. Antibody tests on different strains of influenza B viruses showed that influenza B virus in pigs might be transmitted from humans due to closer human contact, similar to what has been found with types A and C influenza viruses.

9717
CSO: 5400/4112

PEOPLE'S REPUBLIC OF CHINA

HEPATITIS B VIRUS DNA, HBsAg CLONES REPORTED

Beijing ZHONGGUO YIXUE KEXUEYUAN XUEBAO [ACTA ACADEMIAE MEDICINAE SINICAE]
in Chinese No 5, 15 Oct 84 pp 313-317

[Article by Ruan Li [7086 0500], Ren Guifang [0117 6311 2455] and Ruan Weiqin
[7086 5633 3830], et al., all of the Institute of Virology, Beijing: "State
of Hepatitis B Virus DNA and Stability of Expression of HBsAg in Transformed
pC-3-1 Cells"]

[Summary] Hepatitis B virus DNA existed as a single copy in pC-3-1 cells,
being cotransformed with TK gene and plasmid pHBV containing a single copy
of HBV DNA and HBsAg positive. Double copies of HBV DNA in tandem from head
to tail were not found in pC-3-1 cells. Results showed that HBV DNA conserving
only 155 nucleotides upstream of S gene could also express HBsAg in mammalian
cells. HBsAg positive primary clones yielded HBsAg positive and negative cells
on subcloning. The fact that some HBsAg negative subclones still contained
HBV DNA suggested that expression of HBsAg was not only related to HBV DNA,
but also to completeness and the state of HBV DNA in the transformed cells.
Expression of HBsAg in primary clones was unstable, but could be stabilized
by subcloning and culturing in modified HAT medium.

CSO: 5400/4112

PERU

BRIEFS

INFANT MENINGITIS INCIDENCE--A new case of meningitis meningococcus was recorded in Lima. the patient, 7-year-old Christofer Perez Quispe, who is confined in the Del Nino hospital, is progressing favorably. Including the present case, the number of children affected by this disease so far this year adds up to 46. Nine children have died, according to the subdirector of the hospital, Carlos Diaz Rodriguez. The boy's illness was detected at the Ayacucho health center in Lima. Specialists are investigating whether the boy might have passed on the disease to any of his family or school friends. The majority of cases were detected in the Rimac. Other cases were recorded in San Juan de Lurigancho, San Martin de Porres, San Juan de Miraflores, Comas, El Agustino, Chorrillos, La Victoria, Villa Maria del Triunfo, San Luis, Ate-Vitarte and Brena. /Excerpts/ /Lima EL COMERCIO in Spanish 18 Nov 84 p A-7/ 12467

CSO: 5400/2013

PNEUMONIA, HEPATITIS DEATHS REPORTED

Manila PHILIPPINES DAILY EXPRESS in English 26 Nov 84 p 6

[Text] PNEUMONIA claimed 540 lives and downed 1,742 other people in Manila in a 16-week period, making it the city's No. 1 killer disease, the City Health Department said Saturday.

The fatalities and cases were reported by the San Lazaro Hospital, Ospital ng Maynila and other city hospitals and health centers from July 29 to Nov. 17.

City Health Officer Evangeline Suva said pneumonia an acute respiratory disease has been prevalent throughout the years in Manila and that its incidence usually rises during the rainy and cold seasons from June to January.

She said pneumonia, a highly infectious disease, is common among children below six years old and is most prevalent in congested areas like Tondo and Sampaloc.

Transmitted by the sputum and other respiratory discharges of an infected person as well as by contaminated articles and utensils, pneumonia is characterized by fever, chest pains, cough, difficulty in breathing and general weakness.

The Ministry of Health said Saturday hepatitis has become a major problem in the country.

The ministry's Health Intelligence Service said since 1978, hepatitis had been listed as the 10th leading disease.

Dr. Antonio Faraon, HIS senior epidemiologist, said provincial and municipal health offices had reported an average of 2,414 hepatitis deaths and 28,290 cases for every five-year period from 1963.

Based on reported figures, Faraon said, there were 0.9 hepatitis deaths and 5.6 cases per 100,000 population in 1963; 1.2 deaths and 9.6 cases per 100,000 population in 1968; 1.4 deaths and 16.8 cases per 100,000 population in 1973; 1.8 deaths and 15.8 cases per 100,000 population in 1978; and two deaths and 17.6 cases per 100,000 population in 1983.

He said hepatitis, together with other leading viral diseases such as flu, measles, rabbies, polio, chicken pox, hemorrhagic fever and infectious encephalitis, account for 3 percent of all deaths and almost 7 percent of the communicable disease deaths nationwide, or 19.3 deaths for every 100,000 population.

He added that more than 70 percent of the hepatitis cases were in Metro Manila, most of them in the depressed and congested areas of Tondo.

Faraon said hepatitis, common among children and young adults, is caused by excreta and urine of infected persons and transmitted through unsafe water supply and foodstuff not properly washed or cooked.

The acute infectious disease is characterized by yellowish skin and eyes, abdominal discomfort, fever and general weakness caused by the inflammation for the lever.

CSO: 5400/4335

ST LUCIA

BRIEFS

ASSISTANCE FROM BARBADOS--The Director of the Barbados Drug Service, Mr Lennox Prescod, left Barbados yesterday for St Lucia to assist the government there with the drug supply situation. Mr Prescod will work with the St Lucia Ministry of Health during a two-week consultancy after which he will make recommendations for the improvement of that island's drug supply situation. He will examine, among other areas, manpower needs, training, bulk purchasing and distribution of drugs and storage facilities. [Text]
[Bridgetown THE NATION in English 19 Nov 84 p 9]

CSO: 5440/020

BILHARZIA TRANSMISSION IN NATAL STUDIED

Marshalltown SOUTH AFRICAN JOURNAL OF SCIENCE in English Oct 84 pp 455-460

[Article by Fiona A. Donnelly, C. C. Appleton, G. W. Begg and C. H. J. Schutte]

[Text]

*The possibility of contracting bilharzia in the many estuaries and lagoons along the Natal coast prompted a study of one of these systems, the Manzimtoti. A two-year sampling programme conducted in the lagoon and lower riverine reaches revealed an inverse relationship between salinity and the abundance of *Bulinus africanus* — the intermediate host of *Schistosoma haematobium*, the parasite responsible for urinary bilharzia, and also of *S. mattheei*, the parasite which affects cattle. The small proportion of juvenile snails collected in the brackish part of the system suggested that their survival was being inhibited by the prevailing salinity range of 2–6.6‰ but that adults were more tolerant of these conditions. Most infected snails were found 3.3 km and further from the mouth, in permanent freshwater habitats within KwaZulu. Although it was concluded that a *B. africanus* population could not reproduce successfully in the Manzimtoti lagoon, the dislodging and flushing of infected individuals and viable cercariae from the upstream endemic area was considered possible and created the potential for bilharzia transmission in the brackish waters. The implications of these findings for the other coastal systems in Natal are discussed in the light of available salinity data and laboratory experiments.*

Introduction

The province of Natal is situated on the east coast of South Africa and its coastline extends 570 km between the border with Mozambique, in the north, and the border with Transkei in the south. Although the coastline is relatively straight it is interrupted by 73 estuaries and lagoons of various sizes,¹ 62 of which lie south of the Tugela river (Fig. 1). This is because of the steeper topography and consequent increase in the number of rivers draining smaller catchments in this area. On average their frequency of occurrence is one such system per 3.9 km of the coast.² However, of great significance is the fact that this region of Natal is not only the most densely populated in the province, but that it also serves as the

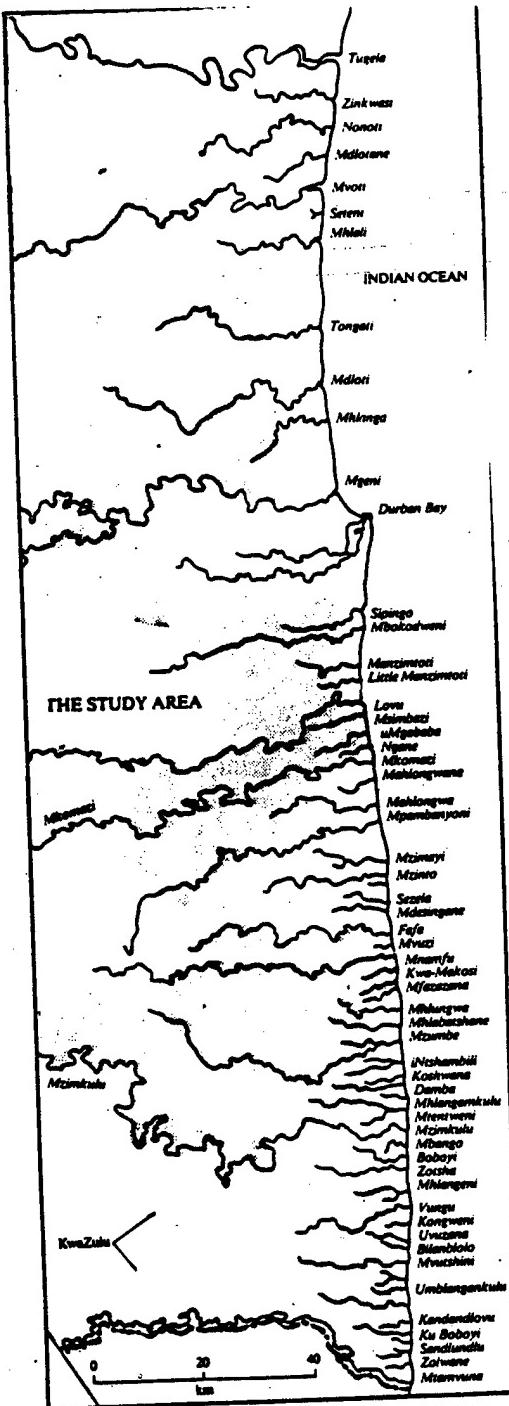


Fig. 1. Map showing the 62 Nasal estuaries and lagoons south of the Tugela river and demarcating the catchments influenced by KwaZulu.

premier holiday area in South Africa. This means that the degree of human contact with water in the coastal lowlands of Natal is therefore considerable.

The parasitic disease, bilharzia or schistosomiasis, is prevalent in the fresh waters of this Natal coastal strip,³ yet the transmission potential of the brackish waters of the province's estuaries and lagoons is unknown. Brackish waters have generally been omitted from surveys and epidemiological studies of the snail intermediate host, but as claims are made from time to time implicating these environments in the transmission of this disease, the possibility of contracting bilharzia in them was investigated. The Manzimtoti lagoon was chosen for the case study.

The Manzimtoti

The Manzimtoti lagoon system was chosen for study because (i) *Bulinus (Physopsis) africanus* has been reported to occur in the catchment areas above the lagoon¹; (ii) bilharzia is known to be prevalent among the inhabitants of the catchment⁴; and (iii) the lagoon is an important public resource, being surrounded by the Borough of Amanzimtoti, which has a total permanent population of 16 000 and annually attracts 160 000 tourists.¹ Further, regular recreational use is made of the lagoon as there is a paddle-boat hiring concern located on the north bank and the sandbar is a popular bathing beach. This study involved the determination of the distribution and abundance of snail intermediate hosts of bilharzia in relation to salinity in the lagoon and lower reaches of the Manzimtoti river. These data coupled with laboratory experiments⁵⁻⁷ and available information on the salinity of each of the lagoons and estuaries elsewhere on the coast⁸ have been used to assess the bilharzia transmission potential of brackish waters in Natal.

Records of the length of the Manzimtoti river vary from 10 km (ref. 9) to 14 km.¹⁰ The mouth of the Manzimtoti has been classified as a 'lagoon'¹ and as a 'closed or blind estuary'.¹¹ To avoid any confusion in this text, it shall be referred to as a lagoon. The lagoon (30°40'S, 30°53'E) lies 31 km south-west of Durban by road and in normal circumstances has an area of 6.67 hectares.¹ Depending on the condition of the mouth, the axial length can vary from 0.7 to 2.0 km.⁸ The extreme head of the lagoon was taken to coincide with a low level causeway which acts as a crossing point for vehicles, 2.3 km from the mouth. Over 80% of the catchment falls within the Umbumbulu district of KwaZulu. Nine sampling stations were selected in the Manzimtoti lagoon and three above the low level causeway so as to include representatives of both brackish and freshwater habitats and to encompass several human contact points (Fig. 2). Sampling began in March 1980 and continued at monthly intervals until February 1982.

Surface salinity

The variation in surface salinity recorded in the lower 2.3 km of the Manzimtoti during the sampling period is shown in Fig. 3. During the two-year sampling period, the surface salinity was found to range from a minimum of 0.4‰ in December 1980 to a maximum of 6.8‰ in October 1981. A slightly greater range at the surface, from 0 to 8‰, was recorded over the period September 1979 to July 1981,⁸ although from May to August 1972, salinities from 4 to

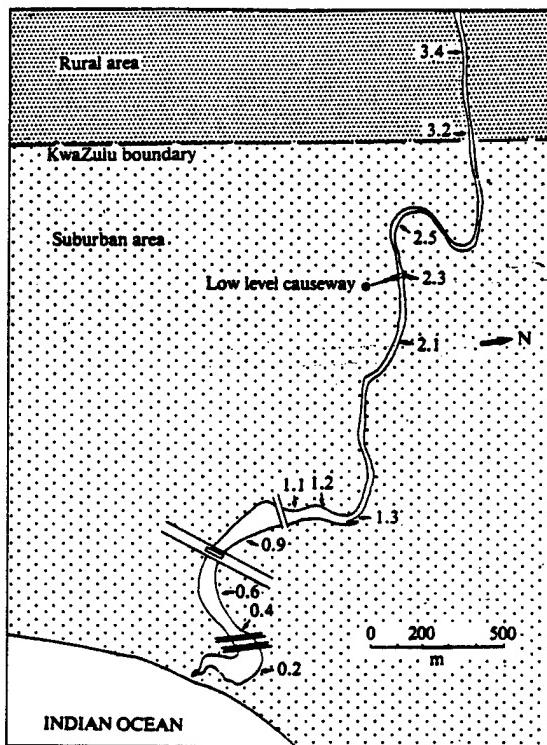


Fig. 2. Map of the lower reaches of the Manzimtoti river and lagoon, showing the location of the twelve sampling stations. These stations are indicated by the distance (in kilometres) upstream from the lagoon mouth.

13‰ were measured.¹² The Manzimtoti is generally unstratified and has a low surface salinity of 3.5‰ on average. The salinity ranges and mean values recorded at each station during the survey period are illustrated in Fig. 4. There was a gradual decrease in salinity with distance from the lagoon mouth and the furthest upstream that salinity was detected was 2.3 km. Penetration beyond this point was prevented by a low level causeway which acted as an artificial barrier between brackish and freshwater regions.

The mouth of the Manzimtoti lagoon is normally closed, but the natural pattern of opening and closing is obscure due to continual interference with the system by artificial breaching of the bar. For example, during a study period lasting 57 months reported on by Begg⁴ the system was breached artificially on at least 70 occasions. Despite this, the system remained relatively fresh, which suggests that even whilst open the degree of exchange with the sea is retarded by a number of rock sills across the mouth, a man-made weir and the relative height of the floor of the lagoon above sea level.

Mollusc distribution

The mean numbers of *Bulinus africanus* (all > 5 mm shell height) collected per man per half-hour in relation to the mean salinity and salinity range are shown in Fig. 4. The inverse relationship between salinity and the numbers of these snails sampled in the Manzimtoti suggests that the prevailing surface salinity plays an important role

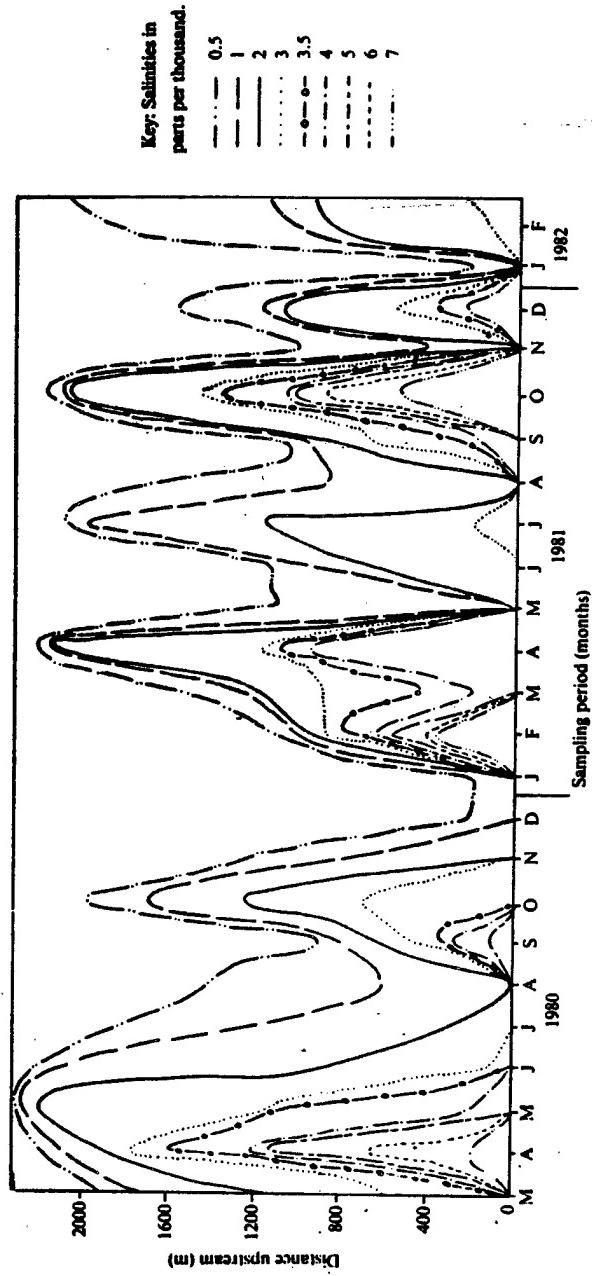
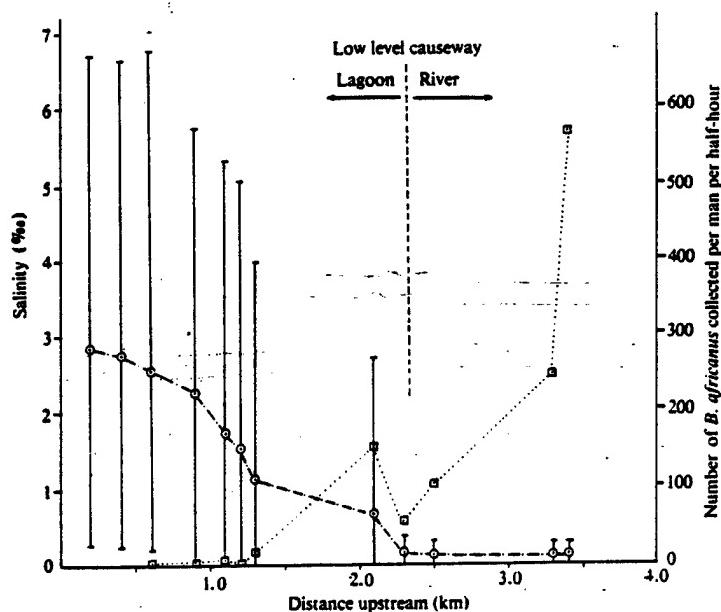


Fig. 3. Variation in surface salinity in the lower 2.3 km of the Manzimnoti lagoon from March 1980 to February 1982. The salinity contour lines have been labelled in parts per thousand. Shading indicates salinity limits within which schistosome parasites can be transmitted and the snail intermediate host can survive, i.e. < 3.5‰ (ref. 20).

Fig. 4. Relationship between the salinity (as indicated by the means and ranges) and the mean number of *B. africanus* collected per man per half-hour at the twelve sampling stations between March 1980 and February 1982. Vertical bars indicate salinity range.



in determining the longitudinal distribution and abundance of the snails in the brackish reaches of the lagoon. A salinity range of 0 – 2.7‰ and a mean of 0.6‰ at 2.1 km did not exclude the snails, whereas markedly fewer were collected at 1.3 km, which experienced a range of 0 – 4‰ (mean of 1.2‰). No *B. africanus* were found below 0.6 km where a salinity range of 0 – 6.6‰ and a mean of 2.8‰ were recorded. Although the mean salinities recorded at the lower stations were within the tolerance range of *B. africanus*³ and were similar to salinities from which pulmonate snails have been reported in other countries,^{13–15} the salinity range appears to be of more importance in determining the downstream distribution and abundance of these snails. There are no reports in the literature of pulmonate snails being found in habitats experiencing salinity ranges greater than these, i.e. > 5‰.

The presence only of snails > 9.1 mm in waters less than 2.1 km from the mouth suggests that only adults were capable of tolerating these salinity fluctuations, as was also noted in surveys by the World Health Organization (1957). The absence of juvenile *B. africanus* (< 5 mm shell height) within 2.1 km of the mouth and the fact that no egg capsules were ever found on the marginal vegetation is further evidence for this. The species clearly does not breed in this brackish stretch of river but rather in the permanent freshwater conditions further upstream where breeding populations have indeed been found. The occurrence of *B. africanus* in the zone of saline influence (0.6 – 2.3 km upstream from the mouth) is undoubtedly due to the passive transport of both infected and uninfected specimens from these upstream breeding areas. This was demonstrated on one occasion when an adult *B. africanus* was found on a floating log, only 1.2 km from the lagoon mouth. Although no relationship was apparent between rainfall and the longitudinal distribution of the snails, it is known that heavy rains can result in the dislodging and flushing of snail populations as was demonstrated in South Africa by Appleton¹⁶ and elsewhere.^{17–19}

Bilharzia transmission

In this study, as elaborated elsewhere,²⁰ the infection rates were determined by screening for cercariae emerging from infected snails so that only patent infections were detected. A total of 43 *B. africanus* out of 2 511 collected during the two years were found to shed cercariae belonging to the trematode genus *Schistosoma*, resulting in an overall infection rate of 1.7%. This is within the range recorded for *Schistosoma mansoni* infections in *Biomphalaria pfeifferi* in Ethiopia²¹ and in Kenya.²² Low trematode prevalence rates are, as noted by Hairston,²³ the rule in natural host snail populations. The number of infected snails collected monthly and their downstream distribution are listed in Table 1. The higher infection rates were found during the warmer months with the highest occurring in March 1981, followed by January of the same year. This is presumably a manifestation of the seasonal transmission pattern of bilharzia in South Africa.²⁴

Table 1. Number of *B. africanus* infected with *Schistosoma* spp. collected in the upper reaches of the study area from March 1980 to February 1982.

Distance from lagoon mouth (km)	1980			1981			1982			Total	
	Jul	Nov	Jan	Mar	Apr	May	Oct	Dec	Jan	Feb	
1.3		1									1
2.3		1	1	2				1			5
2.5			1	3		1			1		6
3.2		1	2	5					1		9
3.4		1	1	8	2	1	1	1	6	1	22
% of infec- ted snails	4.2	5	7.9	11.8	2.8	0.8	0.7	4.4	1.4		1.7

Laboratory rodents, *Praomys (Mastomys) coucha*, were exposed to the cercariae shed by individual snails and perfused once the infections had matured. Eighty-nine percent of the worm returns were identified electrophoretically as *Schistosoma mattheei*, a parasite of cattle but which may also infect man, whereas 11% were probably *Schistosoma haematobium* (P. J. Fripp, personal communication). Schistosomes were the least common of the larval trematodes found in *B. africanus*, as can be seen in Table 2.

The majority of infected snails were found upstream of 3.3 km — a rural residential area within the boundaries of KwaZulu. The Manzimtoti river forms an integral part of the life of the people inhabiting the area in that river water is used for all domestic and recreational purposes. Families living in this region also water their herds of cattle and goats daily in the river about 3.3 km from the mouth. Examination of faecal samples from these cattle has revealed a prevalence of 66.7% ($n = 9$) *S. mattheei* infection and thus these animals are certain to be actively involved in transmission. Although *S. haematobium* was not positively identified in this study, it too is involved, as examination of the urine of each of six of the local children living upstream of 3.3 km revealed the presence of *S. haematobium* ova. A 58% prevalence of *S. haematobium* infection has been recorded in the Adams Mission (KwaZulu) area which also forms part of the catchment of the Manzimtoti river.⁴ Mixed

infections of *S. haematobium* and *S. mattheei* have also been reported from man in this region.

The closest to the lagoon mouth that a schistosome-infected snail was found was 1.3 km, well within the area used for recreation. As this station lies in the suburban area of Amanzimtoti it is considered unlikely that it was infected in this area and, following the argument presented above, presumably originated further upstream. In comparison, the furthest downstream that uninfected specimens were found was only 0.6 km from the lagoon mouth, which suggests that infected snails might at times be carried even below 1.3 km. Nevertheless, apart from the washing down of infected snails by currents, it has been demonstrated repeatedly that viable cercariae can also be transported long distances in flowing water.²³⁻²⁷ This latter mechanism could further extend the range of potential infection into the lagoon itself.

Discussion of case study

A comprehensive laboratory study by Donnelly, Appleton and Schutte⁴⁻⁷ has determined that the precise limits of salinity within which the schistosome parasites can be transmitted and the snail intermediate host can survive, range between fresh water and 3.5‰. Comparisons between the salinity tolerance ranges and upper lethal

Table 2. Percentage of trematode infections found in *B. africanus* during the two-year sampling period.

Trematode	Percentage
<i>Schistosoma</i> spp.	1.7
Strigeidae	1.9
Clinostomatidae	2.3
Echinostomatidae	2.4

limits of the schistosomes, *S. mattheei* and *S. haematobium*, and their common intermediate host, *B. africanus*, have revealed that the free-living stages of the parasites were better adapted to a brackish water environment than the snail host. The wider salinity tolerance of the parasite implies that the limits within which infection of the definitive host can occur are extended, particularly in flowing water, beyond those restricting their snail hosts. The cercariae remain infective in salinities of up to 7‰, although their ability to develop to maturity is much reduced at these levels. In this context the snail intermediate host can justifiably be regarded as the most vulnerable link in the schistosome life-cycle. This is in general agreement with the observations of Chernin and Bower²⁸ on *Biomphalaria glabrata* and *Schistosoma mansoni*.

Extrapolation of the experimental findings⁴⁻⁷ to the field situation both explained and reaffirmed the observations in the Manzimtoti lagoon. The rather narrow limits of optimal tolerance of *B. africanus* from fresh water to 3.5‰ would preclude survival in the lagoon itself for any length of time. Furthermore, although the salinity regime further upstream (> 1.1 km) was well within the tolerance range of adult snails, a self-perpetuating population would be unable to exist owing to the lower optimal tolerance of hatchlings and juvenile snails, i.e. fresh water to 1.75‰.³

Although it appears from Fig. 5 that the salinity regime remains

Table 3. A comparison of the surface salinity data from 62 different localities south of the Tugela river in Natal. Shading represents those systems in which the range in salinity is generally low enough to be within the tolerance of *Bulinus africanus*.

	Surface salinity (‰)			Number of measurements taken	
	Min.	Mean	Max.		
Zinkwasi	2	20.5	35	Sep 79 - Jul 81	117
Nonoti	0	1.4	6	Jan 82-Aug 82	18
Mdlotane	0	2.3	5	Jan 82-Aug 82	18
Mvoti	0	0.0	0	Jan 82-Aug 82	15
Seteni	0	1.3	3	Jan 82-Aug 82	12
Mhlali	0	10.4	34	Oct 80-Aug 81	56
Tongati	0	3.2	11	Sep 79-Jul 81	71
Mdloti	0	2.4	18	Sep 79-Jul 81	107
Mhlanga	0	3.3	32	Oct 80-Aug 81	52
Mgeni	0	9.3	35	Sep 79-Aug 81	202
Durban Bayhead	5	25.0	34	Oct 80-Aug 81	51
Sipingo (N arm)	0	3.0	12	Sep 79-Aug 82	12
Sipingo (S arm)	20	30.0	34	Sep 79-Aug 82	8
Mbokodweni (N arm)	0	0.5	1	Jan 82-Aug 82	5
(S arm)	1	7.3	16	Jan 82-Aug 82	9
Manzimtoti	0	3.3	8	Sep 79-Jul 81	86
Little Manzimtoti	0	2.6	10	Oct 80-Aug 81	37
Lovu	0	6.7	25	Oct 80-Aug 81	46
Msimbazi	2	13.5	27	Sep 79-Jul 81	123
uMgababa	0	9.5	26	Oct 80-Aug 81	58
Ngane	3	6.9	12	Jan 82-Aug 82	14
Mkomazi	0	6.2	35	Sep 79-Aug 81	132
Mahlongwana	0	1.9	4	Jan 82-Aug 82	20
Mahlongwa	0	12.6	26	Oct 79-Jul 81	90
Mpambonyoni	2	5.5	17	Jan 82-Aug 82	15
Mzimayi	0	1.6	10	May 80-Aug 82	14
Mzinto	0	2.8	5	Jan 82-Aug 82	26
Mkumbane	0	1.9	4	Feb 82-Aug 82	12
Sezaia (above weir)	2	4.9	9	Feb 82-Aug 82	15
Mdesingane (below weir)	0	1.0	3	Feb 82-Aug 82	7
Fafa	0	0.7	3	Feb 82-Sep 82	23
Mvuzi	0	3.8	8	Feb 82-Sep 82	13
Mtvalume	0	10.4	32	Feb 82-Sep 82	20
Mnamfu	0	3.4	8	Feb 82-Sep 82	14
Kwa Makosi	0	7.1	28	Feb 82-Sep 82	14
Mfazazana	0	1.4	3	Feb 82-Sep 82	13
Mhlungwa	0	1.4	5	Mar 82-Sep 82	18
Mhlabatshane	10	17.8	34	Mar 82-Sep 82	15
Mzumbe	0	0.1	1	Mar 82-Sep 82	14
iNtshambili	0	1.5	5	Mar 82-Sep 82	16
Koshwana	5	11.6	16	Mar 82-Sep 82	13
Damba	0	5.2	8	Mar 82-Sep 82	13
Mhiangamkulu	0	2.7	6	Mar 82-Sep 82	18
Mtentweni	0	9.3	20	Mar 82-Sep 82	20
Mzimkulu	0	2.2	28	Mar 82-Sep 82	21
Mbanglo	0	2.6	13	Mar 82-Sep 82	17
Boboyi	1	3.5	10	Mar 82-Sep 82	12
Zotsha	0	4.2	8	Mar 82-Sep 82	22

[Table continued on following page]

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Mhlangeni	0	8.7	14	Mar 82-Oct 82	15
Vungu	1	3.5	8	Mar 82-Oct 82	17
Kongweni	0	5.5	10	Mar 82-Oct 82	16
Uvuzana	0	1.2	3	Mar 82-Oct 82	13
Bilanhlolo	0	5.7	10	Mar 82-Oct 82	15
Mvutshini	1	4.2	6	Mar 82-Oct 82	12
Mbizana	0	2.3	5	Mar 82-Oct 82	17
Kaba	3	5.3	8	Apr 82-Oct 82	15
Umhlangankulu	2	6.6	21	Apr 82-Oct 82	18
Mpenjati	0	11.3	32	Apr 82-Oct 82	20
Kandandlovu	0	1.8	4	Apr 82-Oct 82	15
Tongazi	0	3.4	8	Apr 82-Oct 82	10
Kuboboyi	0	4.4	8	Apr 82-Oct 82	15
Sandiundlu	0	6.0	13	Apr 82-Nov 82	16
Zolwane	0	2.7	8	Apr 82-Nov 82	3
Mtamvuna	0	7.4	22	Apr 82-Nov 82	19

low enough periodically to enable the snails to breed and live for four to five months, the impermanent nature of this saline environment would prevent colonisation beyond one generation. Nevertheless, even though it is unlikely that *B. africanus* will flourish in the river below 2.1 km, the risk of infection there is still very real. This is because there is a thriving source of snail intermediate hosts in a bilharzia-endemic area upstream and infected snails are continually being carried to the brackish areas by river flow. Moreover, the salinities prevailing downstream are within the range in which infection can occur, albeit with a reduced success rate, and therefore transmission of bilharzia is possible in the lowest reaches of the Manzimtoti river and in the lagoon itself (Fig. 6). This situation, as described for the Manzimtoti, would hold for virtually every other lagoon along the Natal coast.

Implications for the other Natal systems

Elsewhere in Natal, the annual salinity range differs markedly from one system to the next (Table 3). Certain rivers, such as the Zinkwasi, are considerably more saline (20.5‰ on average) than others, whereas the Mvoti is normally fresh. In between there is a complete range of lagoons and estuaries which, if classified according to the 'Venice System',²⁹ can be conveniently grouped into oligohaline (approx. 0.5–5‰), mesohaline (approx. 5–18‰) and polyhaline (approx. 18–30‰) categories. Great variation in respect of homogeneity of the water column was also experienced³⁰ and a number of interactive factors isolated to account for these differences. These include the condition of the mouth, the level of the crest of the sandbar, wave height, mean annual runoff, the relative height of the system above sea level, tidal influences and the degree of wind-induced circulation.

Based on the salinity data given in Table 3, and the tolerance range of *B. africanus* to be 0–5‰ with a mean of 2.5‰,³¹ a potential for the transmission of bilharzia would appear to exist in 24 of the coastal water bodies demarcated in Fig. 1. This includes systems such as the Mhlanga, Mdloti and Mbango in which the

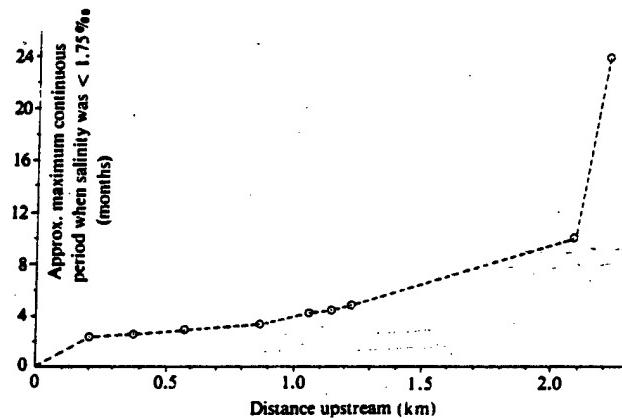


Fig. 5. The maximum continuous period the salinity was < 1.75 ‰ in the lower 2.3 km of the Manzimtoti lagoon during the two-year sampling period.

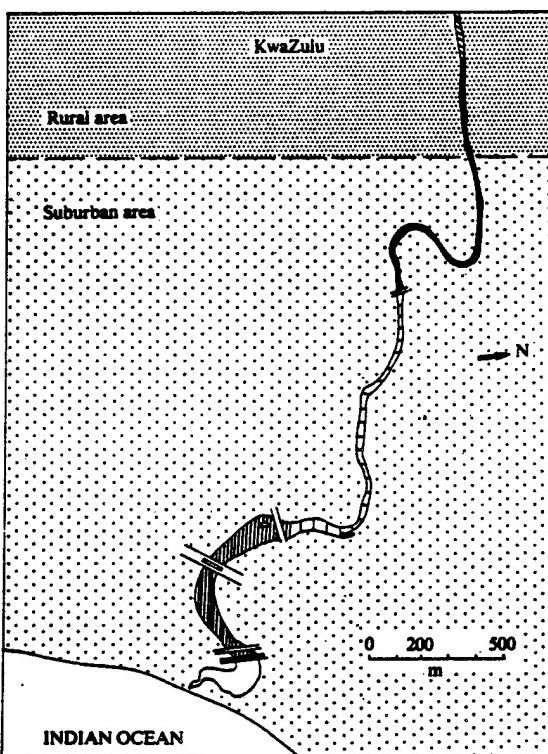


Fig. 6. Map demarcating the regions of salinity tolerance of *B. africanus* and the free-living stages of *Schistosoma* spp. in the Manzimtoti lagoon. ■■■ Breeding populations of *B. africanus*. ■■■ *B. africanus* juvenile and hatching tolerance. ■■■ Adult *B. africanus* tolerance. ■■■ *Schistosoma* spp. tolerance.

maximal values shown are, in our experience, unrepresentative of the norm. In these instances the mean salinity stands out as a useful indicator of the prevailing conditions.

An important implication of the distribution of these 24 systems in Natal is the proportion of these catchments occupied by KwaZulu (see Fig. 1) because in these areas the incidence of bilharzia is frequently high, ranging from 1 - 5% to > 70% (to a distance of approximately 40 km from the coast).³

Any tendency for the water of these coastal systems to become less saline obviously means that the potential for bilharzia transmission is increased. Unhappily, there is evidence to suggest that in Natal this process is in fact occurring, and attributable to several factors.² The most important of these is the process of river mouth transformation wherein the premature senescence of both estuaries and lagoons is being speeded up by sedimentation of the upper reaches. This process has been graphically described by Schubel and Hirschberg,²⁰ who have explained that '... sedimentation rates are highest near the head of the estuary where a delta usually forms near the new river mouth. The delta grows progressively seaward within the estuary to extend the realm of the river and force the intruding sea out of the semi-enclosed tidal basin ...' until eventually '... the river reaches the sea through a broad, depositional plain, and the transformation is complete.' In the area under consideration this process has been aggravated by the high rates of soil loss and run-off that are associated with Natal's river systems and in certain cases, e.g. the Mvoti, completed because the system is presently fresh to its confluence with the sea. In other words, what was formerly an estuary has been transformed by sedimentation into a river mouth, and from a biological point of view, what were formerly estuarine biota are replaced by riverine biota. Species replacement must take place at every level of the community, *including the Mollusca*, and favour the spread of freshwater species such as *B. africanus*. According to Begg,² river mouth transformation is in an advanced stage in the Mzumbe and certain smaller systems such as the Mkumbane and Mzimayi.

Another factor influencing the 'process of freshening' in Natal is the substantial movement along the coast of sand by littoral drift. This phenomenon causes the closure of many of these systems, deliberately classified as lagoons by Barnes³¹ and Begg,^{1,2} for inordinately long periods of time. In the Mahlongwana, for example, the system has remained closed to the sea for all but 24 days of the last four years⁴ and in this condition has come to exhibit oligohaline characteristics. Although the salinity of these systems is still affected by overtopping of the sandbar, it seems reasonable to assume that if contact with the sea were a more regular event, then the salinity regime would be substantially different.

Another natural feature of many lagoons in Natal is their tendency to be perched at a height above sea level that precludes significant tidal exchange, even when the mouth is open. This therefore has a bearing on the present-day salinity characteristics of these systems.

Weir construction has also caused certain systems to freshen. This is most clearly seen in the Mdesingane (Table 3) where a weir exists in the lower reaches. Weirs have, however, also been built across the mouths of other systems (e.g. Fafa, Manzimtoti and Kabe) in an endeavour to stabilize water levels. These have generally proved ineffective, as they become covered by sand and are

bypassed whenever the mouth opens. When built across the upper reaches on the other hand (as in the case of the Sandlundlu), weirs have been found to prevent the admixture of brackish water above these points and thereby reduce the full extent of the lagoon. The low level causeway, 2.3 km from the Manzimtoti lagoon mouth, has a similar effect. As salinity is a governing factor in the transmission potential of bilharzia, changes of this nature increase this potential in the upper reaches of the affected water bodies. Natural weirs, in the form of rock sills, are also a geomorphological feature of certain systems, such as the Mhlangamkulu, and thus affect the salinity situation similarly.

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CSO: 5400/40

INCREASED INCIDENCE OF MALARIA FORECAST

Johannesburg THE STAR in English 6 Dec 84 p 20

[Article by Pamela Kleinot]

[Text]

Malaria is staging a comeback as a threat to the health of many communities in previously endemic regions, says Professor James Gear.

Although malaria was virtually eliminated from South Africa when houses and huts were sprayed with DDT after World War 2, the mosquitoes responsible for its transmission were not eradicated.

"Malaria remains one of the serious diseases of southern Africa," says Professor Gear, honorary professor of tropical medicine at the University of the Witwatersrand, National Institute for Virology and South African Institute for Medical Research.

He writes in the South African Journal of Continuing Medical Education that malaria can be prevented by measures which break the man-mosquito-man cycle of the parasite.

Valuable ways to avoid mosquito bites include efficient screening of houses and other dwellings, spraying rooms with insecticide in the evening and sleeping under a mosquito net.

The use of mosquito repellents on exposed parts

of the body and on pillows is useful.

Professor Gear says the most important factors influencing the prevalence, incidence and geographical distribution of malaria are the species and habits of the mosquitoes responsible for its transmission.

He adds: "Ever since Louis Trichardt and his party passed through the region on his trek from the vicinity of Pietersburg to Lourenco Marques, now Maputo, the lowveld of the northern and eastern Transvaal, northern Natal and Zululand has been notorious for the ravages of malaria and blackwater fever."

"When DDT became available towards the end of World War 2, a campaign to control mosquito vectors was undertaken by the Health Department.

"All houses and huts in the endemic area were sprayed.

"The results exceeded the most sanguine hopes of the health officers and malaria was virtually eliminated from South Africa."

But, says Professor Gear, the infection continued to smoulder and

the mosquitoes responsible for its transmission were not eradicated.

"When conditions were especially favourable for their proliferation following a cyclone which traversed the district in 1967," he adds, "there was a flare-up of the disease in Komatiepoort and its vicinity in the eastern Transvaal.

"Since then there have been several more widely spread outbreaks and malaria remains a threat to the region."

Professor Gear says early studies found that of over 20 species of anopheline mosquitoes occurring in this region, only two were important in the transmission of malaria, namely *Anopheles gambiae* and *Anopheles funestus*.

He adds that both species are responsible for the infection which persists all the year round in the endemic zone east of the Drakensburg.

Professor Gear says it has subsequently been established that there are at least five species in the *Anopheles gambiae* complex, whose external appearances are similar but there are great differences in their habits.

• Malaria transmitted by blood transfusion is a ~~method~~ of increasing importance in tropical regions, says Professor Gear.

CSO: 5400/44

HOLIDAYMAKERS WARNED OF MALARIA, BILHARZIA THREAT

Johannesburg THE STAR in English 5 Dec 84 p 2M

[Article by Pamela Kleinot]

[Text]

Holidaymakers are warned to take anti-malaria tablets if they intend to travel in the Eastern Transvaal, Zululand or Northern Natal.

Last year 1 987 malaria cases were reported in South Africa.

Anti-malaria tablets — which should be taken before, during, and for at least a month after being in an affected area — can be bought at pharmacies.

It is imperative that tablets be taken as specified, because it can be weeks after a mosquito bite before the malaria parasites are shed into the bloodstream. Only then can the preventive drugs kill them.

Anyone who visits a malaria area and develops flu-like symptoms should see a doctor immediately, even if he has taken preventive drugs.

Malaria can usually be cured completely by drugs. But if it is not diagnosed early and treated it could kill a person within a week.

Untreated victims could develop the cerebral form of the disease, which often leads to coma and then death.

First symptoms are bouts of fever, hot and cold shivers, and headaches which could be followed by mental confusion.

Tick-bite fever can be picked up while picnicking, hunting or walking barefoot in long grass.

Tick-bite fever can also be contracted by removing ticks from dogs and crushing them with bare hands.

Travellers in various parts of the world can be exposed to a variety of waterborne diseases which do not occur in their normal environment, such as typhoid, cholera and infectious hepatitis.

Dysentery can be contracted by drinking contaminated water or eating food washed in it, or handled by carriers.

People travelling in tropical areas should take these precautions:

- Do not swim in dams and rivers in low areas. High mountain streams are usually safe.

- Do not drink water from rivers, dams or canals in any rural area.

- Be cautious about what you eat, particularly raw

vegetables. Lettuce is a high risk food in certain areas.

● Do not drink milk unless it has been pasteurised.

People swimming in rivers in any tropical area run the risk of bilharzia.

Bilharzia is contracted by swimming in snail-infested water. Fast-running mountain streams are usually safe, but there are areas even round Johannesburg where bilharzia can be present.

Symptoms are blood in urine, with fever, lassitude and headache.

CSO: 5400/44

INCREASED AIDS INCIDENCE EXPECTED

Stockholm SVENSKA DAGBLADET in Swedish 2 Nov 84 p 8

[Text] Thousands of homosexual men in Sweden may have been exposed to the virus of AIDS, a disease characterized by loss of immunity, and therefore be potential carriers of the disease. Even heterosexual individuals may have been infected.

It is expected that cases of AIDS will double next year. The 15th case of the disease was just recorded during the last couple of days.

"We must initiate drastic measures in order to prevent this disease from becoming an epidemic," says Doctor Linda Morfelt-Mansson at Roslagstull Hospital, who is also a member of the board of the newly formed association 'Swedish Physicians Against AIDS.'

The largest groups at risk in this connection are homosexual and bisexual men and they will now be offered to undergo health examinations--on a large scale--to investigate the presence of antibodies against AIDS. This will assure that all who have been exposed to the virus will be told about it and which appropriate preventive measures they should take.

"This is partly to avoid further infection and to prevent weakening the immune defense, partly to avoid new sexual contacts which carry the risk of spreading the infection further."

It is also unclear as to how many of those exposed to the infection actually will contract AIDS. Some American investigations put the figure at 20 percent.

Even heterosexuals can contract the disease. There are some 35 cases of this in the United States, 33 women and two men who were infected through heterosexual contacts. In addition there have been some 50 cases of AIDS recorded which were transmitted by blood transfusions.

9349
CSO: 5400/2504

DEATH INCREASES CONCERN OVER TUBERCULOSIS

Stockholm DAGENS NYHETER in Swedish 8 Nov 84 p 6

[Article by Anders Ohman: "Woman Died From Tuberculosis"]

[Text] Last summer a woman in Harnosand died from pulmonary tuberculosis (TB) after having suffered from a cough for two years before the disease was discovered.

Now between 400 and 500 persons who lived in the vicinity have been examined and next week the report will be submitted to the National Bacteriological Laboratory's (SBL) pulmonary clinic in Sundsvall.

The woman who had TB worked in a school where at least four children were infected. An extensive investigation was started on the day the disease was discovered. The school's students, personnel and parents were contacted and the local radio and newspapers assisted in spreading the information.

"I think that we have gotten hold of most of the people who had been in contact with the woman," said Klas Ehinger, the teacher in Harnosand who was in charge of the investigation.

The four infected children were cured through the use of TB antibiotics. Regular penicillin has no effect on pulmonary tuberculosis. The four school children have now fully recovered but are still being checked periodically.

School children in the second and third grades are particularly closely checked as they had not been vaccinated. The BCG [Bacillus Calmette-Guerin] vaccination requirement was abolished 1975. The students in first grade were never in contact with the TB-infected woman.

None of the TB-infected children have spread the disease and--according to Doctor Klas Ehinger--the situation is under control.

9349
CSO: 5400/2504

SWEDEN

ADDITIONAL DETAILS ON SPREAD OF DIPHTHERIA EPIDEMIC

Stockholm DAGENS NYHETER in Swedish 8 Nov 84 p 6

[Article by Anders Ohman: "Yet Another Disease Carrier--Information on Diphtheria Investigated"]

[Text] On Wednesday, one more person was discovered who was a diphtheria carrier. That brings the total number of healthy disease carriers up to 13. The thirteenth person was an individual who had already been admitted to East Hospital for observation.

The number of people admitted to hospitals for observation also increased from 28--on Tuesday--to 42 on Wednesday.

The county administration of Gothenburg and Bohuslan [province] have asked the National Psychological Defense Planning Committee to investigate the manner in which the information about the current diphtheria epidemic in Gothenburg was disseminated.

There has also been criticism about the way local authorities have given information. Conflicting and incomplete information--and even wild rumors--have caused public anxiety.

"When something like this happens it is extremely important to give truthful information and say what the authorities are doing. This is also why we want to highlight the issue of the diphtheria cases and see if we can make improvements," says Ulf Turesson, county administrator in Gothenborg to DAGENS NYHETER.

He and the Director of Defense Hans Bystrom, have written the National Defense Committee asking them to examine the information about the diphtheria epidemic.

The credibility of the health care authorities was severely questioned when one doctor initially stated that there was no cause for concern and --shortly thereafter--two more cases of diphtheria were discovered.

The School of Journalism at the University of Gothenburg--which was directly affected by the diphtheria epidemic--voiced sharp criticism of the way the authorities disseminated information.

Several of the students at the school attended a party together with the man who later died from diphtheria. When the alarm was sounded about the disease the name of the place where the party was held was kept secret.

The students who had been at the party even called the hospital themselves and received conflicting information.

Some students were told that there was no reason to worry, others were told to have a medical examination immediately.

The head of the Defense Committee Per-Axel Landahl is considering an investigation of the information procedure in regard to the diphtheria cases in Gothenburg.

"Of course, it is imperative that the public trusts the information given by the authorities in such a sensitive area as epidemic diseases. As far as we are concerned it is primarily a question of allocation of resources," Per-Axel Landahl told DAGENS NYHETER.

9349

CSO: 5400/2504

POPULATION CONCERNED OVER DIPHTHERIA, TB, HEPATITIS SPREAD

Stockholm DAGENS NYHETER in Swedish 17 Nov 84 p 7

[Article by TT,Gagnef: "Diphtheria, TB, Jaundice,,,How Great is the Risk For Getting the Diseases?"]

[Text] The diphtheria epidemic is limited to Gothenburg. That was determined on Friday. At the same time it was reported that the epidemic of jaundice in Gothenburg was spreading and now involves 65 cases. In Gagnef, Dalarna, the personnel and patients in a nursing home are being examined. One person living there died from TB.

Below DAGENS NYHETER reports on the situation and the current epidemics.

Diphtheria

It is now clear that the diphtheria epidemic is limited to Gothenburg. All tests taken from persons in other parts of the country--who had been in contact with carriers of the disease--were negative.

"There are no reasons at all for mass-vaccinations at this time," says Victoria Romanus, a physician at the National Bacteriological Laboratory (SBL) in Stockholm.

Up to now there have been six cases of the disease diagnosed in Gothenburg. Two persons died and some 30 people have been admitted for observation to East Hospital in Gothenburg. Among these 22 definitely are carriers of the disease and 31 has slight symptoms of diphtheria.

A 27-year-old resident of Trollhattan--presently in jail in Boras--also turned out to be a carrier of the disease after visiting the source of the infection, the music club Ceasar in Gothenburg. Four policemen who had been in contact with the man from Trollhattan were placed in isolation in their homes. They can now return to work again after tests showed they had not been infected.

Some 10 policemen and two social workers were also cleared of being infected after being in contact with a carrier of the disease who was temporarily visiting in Stockholm.

"All tests taken turned out to be negative, and the danger for Stockholm can be said to have passed," TT [Swedish Central News Agency] was told by Lennart Hellstrom, a municipal health officer and physician.

Diphtheria is spread through the saliva. In some cases the infection may have been spread through a bottle--or a cigarette--being passed around.

Jaundice

The epidemic of jaundice in Gothenburg is spreading. The number of hepatitis A is now up to 65 cases. Of these the majority are drug addicts, some are foreign travelers and--in eight cases--the origin of the disease is unknown.

"In respect to the drug addicts we are talking about a limited group who have been in contact with one another," says Bengt Mollstedt, director of the Environment and Health Administration in Gothenburg. "We suspect they may have been infected by a contaminated shipment of amphetamines."

"But it is extremely difficult to trace the contacts of those who were infected. They are afraid to reveal anything that could threaten their procurement of drugs."

Thus the drug addicts have contracted the so-called "tourist jaundice," hepatitis A, not the common drug addict's jaundice hepatitis B which is spread by injections.

"This form of jaundice is much less serious than hepatitis B," says Per Haglind, specialist of contagious diseases. "The only thing you can do to get well is to get lots of rest."

The authorities in Gothenburg are under considerable pressure in regard to epidemics.

"We do not feel that we can go any further in tracking down jaundice," says Bengt Mollstedt. "If we had not had to deal with diphtheria at the same time we would have pursued it further. But now we simply just do not have the resources."

"We have turned to the SBL in Stockholm. If they are interested in following up the epidemic for the sake of national interest they will have to send down personnel who can continue the survey and conduct interviews."

"We work in the same way when it concerns diphtheria, i.e., we try to track down the infected person's contacts. But since drug addicts are not very communicative we do not believe that we have found all who are infected," says doctor Per Haglin, in charge of protection of contagious diseases.

People who have been in contact with someone who has jaundice are not placed in isolation. It is not considered to carry the same risk for infection as diphtheria. Hepatitis A is primarily spread through foods.

TB

Personnel and retired people in the nursing home at Gagnef have undergone examinations since one individual living at the home died from TB some time ago. Several hundred people who had been in contact with the man are now being checked.

The person who died in August had been living at the Gagnef home. The fact that he had TB was discovered by coincidence.

The personnel at the home has been examined during the last couple of days. Some 40 employees and some summer substitutes were given shots. In 3 days they will find out about possible infection.

9349

CSO: 5400/2505

DISTEMPER IN CARIBOO REGION REPORTEDLY KILLS 200 DOGS

Vancouver THE SUN in English 31 Oct 84 p A16

[Text]

Fatal

A major epidemic of distemper has killed at least 200 dogs in the Cariboo region, and Williams Lake veterinarian Dr. David Kirby blames it on owners not having \$50 to pay for immunization.

"We've seen over 200 dead dogs since July, all the way from mongrels to purebreds that haven't had their vaccinations kept up," Kirby said in an interview.

He said he believes the 200 dogs known to have died are only a small percentage of the total number of victims. Unrecorded numbers die without being diagnosed and owners dispose of the bodies.

The highly contagious disease, like the common cold, spreads rapidly and there are indications it is reaching into the Quesnel and 100 Mile areas, Kirby said.

"It may be a reflection of economic times that people haven't kept up their pets' vaccinations. Either people don't have the money or they choose to spend it on beer or diversions other than their pets."

The vet said a pup can be protected by a series of three vaccinations at eight, 12 and 16 weeks of age for \$50. An essential annual booster shot costs \$29.

Distemper, a viral disease of domestic dogs, is 90 per cent fatal. Survivors are left with damaged nervous systems resulting in blindness, deafness or lameness.

The virus attacks the soft mucous membranes of the nose, lungs, eyes and intestinal tract. In the first stage, a dog loses appetite and weight, and develops runny eyes, nose and a cough.

Symptoms of the next stage include convulsions, rapid shaking of the jaws and frothing at the mouth.

Incurable

There's no cure for the disease. "Once you see the symptoms, it's too late already," Kirby said.

The virus can be spread by someone who touches a sick dog then carries it to a healthy dog, but the virus is too fragile to survive for long away from the host dog.

Wild dogs and other carnivores build their own immunity system, and the disease maintains itself among domestic dogs because there is always one carrying the virus. Pet dogs need an annual immunity shot and owners should be particularly careful about older pets whose immunity systems are more fragile, Kirby said.

CSO: 5420/10

COLOMBIA

BRIEFS

RABIES OUTBREAK—Quibdo, 27 Nov--The Choco Sectional Health Service and governor's office have declared a "rabies emergency" in Choco Department and established a dog and cat quarantine in the department. A total of 150 rabid dogs have already been killed. [Summary] [Bogota EL TIEMPO in Spanish 28 Nov 84 p 1A PA]

CSO: 5400/2017

MEXICO

BRIEFS

RABIES IN COAHUILA--Saltillo, 19 Oct--A third outbreak of rabies was discovered in the rural community of Chapula, technicians for the Board of Animal Health pointed out, although they confirmed that a vaccination campaign has been intensified in more than 10 communities in the region. Guillermo Elizondo Fernandez, head of the community's health program, stated that among the affected ejidos are those of El Refugio de las Casas and Derramadero. He said that it had been decided to vaccinate, free of charge, 3,000 head of cattle, 8,000 goats and 5,000 dogs to avoid further contagion. [Excerpt] [Mexico City EXCELSIOR in Spanish 20 Oct 84 p 34-A] 9907

CSQ: 5400/2008

MOZAMBIQUE

VACCINATING POULTRY AGAINST NEWCASTLE'S DISEASE

Maputo DOMINGO in Portuguese 17 Oct 84 p 3

[Text] A campaign to vaccinate poultry against Newcastle's disease is scheduled to begin shortly in the city of Maputo, as part of a program designed and coordinated by the Maputo Provincial Agricultural Directorate.

Newcastle's disease is extremely contagious and progresses rapidly, resulting in death for 90 percent of the inflicted animals within 1 to 4 days following the appearance of the symptoms.

Schedules to vaccinate against the disease will be worked out in the districts. Free, compulsory vaccinations will be performed on the property of the breeders.

As we said, the disease spreads rapidly, so it is important for all ducks, chickens and turkeys to be immunized as soon as possible. Breeders should consult the vaccination schedule in the district offices.

The Disease

The source of contamination is diseased animals. The disease particularly afflicts older animals. Man may also carry and transmit the disease.

An average of 3 to 10 days lapses between the time of infection and the appearance of the first symptoms. In the most typical cases, drowsiness is noted, followed by increased depression and respiratory difficulties. The animals take deep and frequent breaths with the beak opened, and the neck and head distended, and they make snorting noises. Diarrhea is frequent. Their droppings are watery and gray or yellow colored.

Other symptoms of the disease are coughing, and a discharge from the beak, nostrils and eyes. Nervous symptoms include enervation or paralysis of the feet and legs, muscular tremors and abnormal movements. After 1 to 4 days, the animals die.

The mortality rate is about 90 percent. The few animals that survive rarely recover from their paralysis.

In the city of Maputo, the Livestock Services have in recent years conducted vaccination programs either among individual farms or enterprises, to limit the occurrence of the disease to isolated cases.

NIGERIA

VETERINARIANS SAY RINDERPEST WILL NOT BE ELIMINATED SOON

Kano SUNDAY TRIUMPH in English 18 Nov 84 pp 1, 12

[Article by Samson Namo]

[Text] Rinderpest, the much dreaded cattle disease, will still remain with us for sometime to come, according to an expert opinion based on a post-mortem analysis of the situation.

This sad news came from the Vice President of the Nigerian Veterinary Medical Association (N.V.M.A.), Dr. Felix A. Arhieubuwa, at an exclusive interview he granted to the SUNDAY TRIUMPH in Ilorin during the just concluded 21st annual conference of the association.

Tracing the background to the widespread rinderpest outbreak suffered by this country, Dr. Arhieubuwa revealed that post-mortem analysis carried out both by the Federal Ministry of Agriculture and his association to determine the circumstances surrounding last year's outbreak proved convincingly that the deadly disease was transmitted into the country from neighbouring African countries through Sokoto State.

Dr. Arhieubuwa claimed that prior to last year's outbreak which extended as far as Oyo State, the disease had been effectively tamed in Nigeria following a joint programme launched by the first civilian federal government back in 1962. The programme was code-named JP15.

The NVMA vice president said that unless the proposed Pan African rinderpest control which the Federal Ministry of Agriculture planned to initiate in collaboration with the Food and Agricultural Organisation (FAO) fully took off it would be "futile and foolish to confine efforts aimed at wiping rinderpest to Nigeria."

This, he said, was because the disease would "definitely spread again from neighbouring countries."

CSO: 5400/26

NIGERIA

BRIEFS

RABIES OUTBREAK SUSPECTED—A suspected outbreak of rabies has been reported in some parts of Lagos. According to the state's Ministry of Agriculture and Co-operatives, the discovery was made following an examination of the brain of a dead dog, which revealed that it died of the disease. The veterinary department of the ministry yesterday directed dog owners in the state to send their dogs for examinations at veterinary clinics. Failure to comply with the directive, the statement said, would lead to destruction of stray dogs. [Text] [Lagos DAILY TIMES in English 7 Nov 84 p 2]

CSO: 5400/26

PERU

BRIEFS

FOOT AND MOUTH OUTBREAK--Arequipa, 14 Nov--The death of two head of cattle from foot and mouth disease in the Mejia-Mollendo district, Islay Province, has resulted in the sending of an SOS by cattlemen of the region. This situation was caused by failure to complete the last phase of immunization by the responsible organizations of the 7th Agrarian Directorate and the prolonged strike by personnel in that sector. In any case, according to agriculture officials of Arequipa, the most suitable measures were taken immediately, including the establishment of a quarantine as a first step toward declaring a regional quarantine. The two cases of foot and mouth disease, according to information received by telephone, occurred on Guillermo Gomez Manrique's ranch, where it was admitted that the last phase of the vaccination process had not been completed. It is said that about 15,000 head of cattle in the Mejia-Mollendo district and throughout Islay Province are at risk. Agriculture officials said, "For the moment, there is no danger that the livestock show scheduled for the Cartagena Accord competitions will be suspended." They added that the cases are isolated and affect a remote area but that action will be taken to control the disease. [Text] [Lima EL COMERCIO in Spanish 15 Nov 84 p A-13] 8143

CSO: 5400/2011

PORUGAL

BRIEFS

LEIRIA DISTRICT HOG CHOLERA--Hog cholera is attacking the northern section of the Leiria District. This was announced yesterday by the promoters of a demonstration of the farmers of the area at the Leiria Municipality. "The lack of sanitary measures among animals is beginning to be a grave threat in our own district as well, especially in the north, where many hogs have died because of classical hog cholera," a communique distributed at the demonstration stated. [Excerpt] [Lisbon DIARIO DE NOTICIAS in Portuguese 27 Nov 84 p 13]

CSO: 5400/2509

ANTHRAX EPIDEMICS DISCUSSED

Hanoi NHAN DAN in Vietnamese 15 Oct 84 p 2

[Article by Nguyen Dang Khai, Veterinary Department, Ministry of Agriculture:
"Prevention and Control of Anthrax Epidemics"]

[Text] Prevention and Control of Anthrax Epidemics

Anthrax is a dangerous disease for many types of animals and even for human beings. Cattle and horses usually die suddenly after work. Those who get anthrax by killing animals affected by this disease or eating their meat can die or have diarrhea, or they may get boils on the face, arms and legs, etc.

Anthrax causes immediate as well as lasting damage.. The elimination of an infested area may take 10 to 15 years through injection of anthrax vaccines to cattle and horses. In recent years anthrax appeared again. In 1983, there were 68 infested areas in 20 districts of 7 provinces and cities, causing the death of 35 cattle and affecting 348 persons. From the beginning of 1984 to the present, the epidemic reached 51 villages of 19 districts belonging to the provinces of Cao Bang, Ha Tuyen, Lai Chai, Son La, Lang Son, Hoang Lien Son, and Ha Bac. The epidemic caused the death of 305 cattle and horses and affected 247 persons.

The epidemic at Duc Long village (Que Vo, Ha Bac) caused the death of 11 cattle.

Article 1 of Directive No 90-CT dated 8 March 1984 from the chairman of the Council of Ministers clearly stated:

- In case of animal epidemics in localities, the province and city people's committee must urgently announce the epidemic to the public, create a committee to fight it, and mobilize divisions of related areas such as agriculture, public security, and health to assemble forces and proceed with urgent measures applied according to statutes for prevention and control of domestic animals and poultry epidemics, so as to quickly eliminate the epidemic and prevent its spread.

- Places not yet affected by the anthrax epidemic should go through a complete inspection and prevent the spread of the epidemic from the outside;

especially areas with communication roads from the mountainous provinces. Agencies responsible for providing cattle should follow and coordinate closely with the veterinary station at the location of purchasing and collecting livestock; follow veterinary rules and regulations in the transport of livestock. All cattle and horses brought from mountain provinces must be vaccinated against anthrax and have a sufficient immunization period.

12745
CSO: 5400/4317

ZAMBIA

BRIEFS

CATTLE VACCINES ARRIVE--Zambia has received 300,000 doses of rinderpest and foot and mouth disease vaccines for routine vaccination campaigns in Southern Province and along the Zambia-Tanzania border of the Northern Province. A Ministry of Agriculture and Water Development spokesman said 180,000 doses of foot and mouth disease vaccine have been received through the European Economic Community (EEC). He added that 120,000 doses of rinderpest disease vaccine have been received through the Overseas Development Administration (ODA), British Assistance Programme by the Department of Veterinary and Tsetse Control Services. The Southern African Development Co-ordination Conference (SADCC) early this year reported that co-ordination of programmes in Botswana, Zimbabwe and Zambia for control of foot and mouth disease in cattle was under way. It added that discussions were under way with an external agency for tsetse control eradication projects on the Botswana/Zambia border. A study of projects in Malawi, Mozambique, Zambia and Zimbabwe has been completed and is under consideration. There is an outbreak of rinderpest in Tanzania posing the greatest potential threat to the region's livestock. Funding has been obtained for the first phase of a K22 million control programme. [Text] [Lusaka ZAMBIA DAILY MAIL in English 20 Nov 84 p 7]

CSO: 5400/43

ZIMBABWE

BRIEFS

TSETSE KILLING CATTLE--Cattle are dying in Mashonaland Central from a serious infestation of tsetse fly, Agritex says in its fortnightly crop and livestock report. The report said that rainfall was reported in most areas with the south-western districts receiving the most rain. The south-eastern and northern districts reported hot weather and scantier rains. Veld and pasture ranged from poor to fairly good, although livestock was said to be in fairly poor condition in commercial areas and satisfactory elsewhere. Most tobacco seedlings in beds were making good growth with few transplantings and irrigated crops being harvested. About 50 percent or more of maize land was being planted in most areas with isolated areas withholding planting due to moisture deficiency. "Little of other grain crops has been planted so far," said the report. "Cotton planting is well in progress in most provinces. Groundnut planting has also started and germination is reported satisfactory. There has been a critical shortage of seed in some regions." [Text] [Harare THE HERALD in English 27 Nov 84 p 5]

CSO: 5400/43

AUSTRALIA

BRIEFS

LOCUSTS SWARM WESTERN VICTORIA--Huge swarms of locusts are descending on wheat farms in parts of the Wimmera District in Western Victoria. Farmers say it has taken the locusts less than 1 month to extend to the Wimmera from the Murray River farmland, about 300 km to the north. The regional office of the Victorian Agriculture Department is telephoning round the wheat belt for reports on the situation. A senior Agriculture Department officer said the greatest danger was to late maturing cereal crops. In southern inland New South Wales and parts of northern Victoria, locusts have already caused widespread damage to crops and grasslands. [Text] [Melbourne Overseas Service in English 0830 GMT 11 Dec 84 BK]

CSO: 5400/4328

BRIEFS

PEST ATTACKS IN BHOLA--BHOLA, Nov. 2: Aman and Raja Shail crops on about 26,000 acres of land in Bhola Sadar upazila, D. Khan, Burhanuddin, Tajimuddin, Mon-pura, Lal Mohon and Char Fession upazila's have been attacked by insects locally known as 'Sheesh Kata Leda Poka and Pata Morano Poka. The worst affected unions are Ilisha Kachia, Dhama, Bhelumia, Bheduria, Char Amanda Pat. Poor cultivators have been doing Quran Khatam, Milad Mahfil in different mosques of the district to get rid of this serious pest attack. Bhola district Agriculture Dept. distributed only 770 Lbs of insecticide which is too inadequate to meet the total requirement. It may be noted that 770 Lbs of insecticide is required for 1500 acres of paddy land. Our correspondent reports: Standing crops on vast areas of land all over Pirojpur District have been attacked by insects. It is apprehended that due to attack on this harmful insects, at least 20 per cent of the crops have totally been damaged. No step has been taken by Agri-Department as yet, it is alleged. Local people feel that Aerial spray is necessary to control the pest attack immediately. [Text] [Dhaka THE NEW NATION in English 4 Nov 84 p 2]

CSO: 5450/0049

PINE BEETLE DAMAGE TO BRITISH COLUMBIA FORESTS REPORTED

Vancouver THE SUN in English 8 Nov 84 pp A1, A2

[Article by Dave Margoshes]

[Text]

The attack of pine beetles in British Columbia's rich Cariboo forests has become a catastrophe.

And the epidemic has come at a time when the restraint-minded government and market-poor timber industry are least prepared to fight back.

The provincial government is throwing another \$5 million into the battle against the pine beetle and its cousin, the spruce beetle, which together have created a crisis for a large chunk of B.C. forests.

The money, most of which will go to build roads into the forests to allow quick cutting of the stricken trees while their timber is still marketable, is only a fraction of what could be spent to battle the beetles, forestry experts say.

But there is a limit to what the market will bear.

With the demand for wood products low and much of the B.C. forestry industry in the doldrums, "there's really no sense in spending any more," University of B.C. forestry professor John McLean said Wednesday.

Experts disagree on the economic impact of the beetle invasion but agree that, in the words of forestry scientist Les Safranyik, the problem has reached "catastrophic proportions" in at least one area, the Cariboo, and is extremely serious in the Kootenays.

Forests Minister Tom Waterland, in announcing the \$5 million in extra spending approved by the cabinet this week, put the potential value of the threatened timber at between \$80 billion and \$90 billion when manufactured into saleable products.

Experts interviewed by The Sun said those figures are meaningless because of the limited market for the timber and the limited life of the trees, which are already mature.

More important, they said, is the potential impact on the future of the forestry industry in the province if the spread of the epidemic cannot be halted.

"Basically, very little can be done to reduce the danger . . . because it's spread over such huge areas," said Safranyik, a research scientist with the federal government's Pacific Forest Research Centre in Victoria and who is a leading authority on the pine beetle.

The infected lodgepole pine stands in the Cariboo — millions of hectares of mature trees — are 16 times larger than the area that would be cut in a normal year, Safranyik said, meaning much of the forest will be lost before it can be harvested, despite the government's best efforts.

And, because the beetle is hard to detect until it is well into its work on a tree, it is difficult to plot defences, according to UBC for-

estry school chairman Harry Smith.

"We've been letting the beetle tell us where to harvest."

Three factors have contributed to the sudden upsurge of the beetles, which began to emerge as a nuisance in the late 1960s and escalated to a threat through the 1970s.

The beetles, which only attack mature trees, found themselves guests at a feast as huge tracts of lodgepole pine grew to the right age at the same time, accompanied by a series of mild winters recently, allowing many more of the beetle larvae than normal to survive.

Add to this a slowdown in the forestry industry, allowing the beetles a freer field for several years, and you have what UBC's Smith called an "unprecedented crisis" for the province's forest managers.

The \$5 million being thrown at the problem by the government is not nearly enough, said Smith, "but it's better than nothing. It could be a very much larger amount."

His colleague McLean agrees but noted "there has to be a tradeoff — how much money can you throw at the problem and still get a good return?"

With a maximum of three years to get a tree to market after it is infected before the wood becomes unusable, loggers are clearly fighting a losing battle.

The pine beetle can be fought in a variety of ways, including treating individual trees — which can cost anywhere from \$20 to \$100 a tree, depending on conditions — and setting "bait trees" to attract the pesky creature. But the most effective way, forestry experts agree, is to clearcut infected areas.

CSO: 5420/11

COLOMBIA

BRIEFS

COFFEE RUST OUTBREAK--Cucuta--The mayor of Hacari has reported that coffee rust was detected on a farm along Aquablanca lane, in an area where an outbreak was completely unexpected. [Summary] [Bogota EL TIEMPO in Spanish 3 Dec 84 p 9C PA]

CSO:5400/2017

ISRAEL

BRIEFS

TREATMENT FOR TOBACCO BUDWORM--The Israel Fibres Institute, a Ministry of Industry and Trade affiliate, believes it may have the solution to one of the oldest problems facing cotton growers throughout the world--plant damage caused by the tobacco budworm pest. The budworm attacks growing cotton by secreting a sugar-like tacky substance on the plants. This not only reduces the quality of the cotton but also gums up the machinery used to turn it into fabric, with a resultant loss of time and money. Though anti-budworm insecticide sprays have been used for years, they exact their "economic as well as ecological price," Fibres Institute direct Avraham Bash told The Jerusalem Post yesterday. The Israeli innovation involves treatment of the cotton after the harvest, either at the ginning or combing stages, with a specially-formulated lubricant tentatively named Halikon ("smoothener"). Halikon leaves no residue and is easily removed when the cotton goes through its washing process. It is also cheaper to produce than the sprays previously employed. [Text] [Jerusalem THE JERUSALEM POST in English 27 Nov 84 p 3]

CSO: 5400/4504

KENYA

BRIEFS

CATERPILLARS THREATEN CROPS--Nairobi--A widespread invasion of army worms in Kenya is being combated jointly by the Agriculture Ministry and the East Africa Desert Locust Control Organisation. The worms, believed to have entered Kenya's eastern and northern regions from Somalia and its southern region from Tanzania, are converging on Nairobi from three directions. The "worms", caterpillars which hatch into white butterflies and work their way across country rapidly in life-cycle relays, last invaded Kenya in force after the great drought of 1960. The caterpillars consume all greenery over vast areas of countryside and are wiped out only by spraying the land ahead of their migration. Kenyan farmers are being given free insecticides and hundreds are using stirrup pumps to save their first crops after a year of drought.--Reuter. [Text] [Johannesburg THE STAR in English 30 Nov 84 p 9]

CSO: 5400/39

MEXICO

BRIEFS

AFRICAN BEE COUNTERMEASURE PROPOSALS--Tapachula, 28 Oct--Local apiculturists requested economic and technical support from state and federal authorities in order to create a phytosanitary barrier at the border that would prevent African bees from entering the country starting next January, said the assistant secretary of the SARH [Secretariat of Agriculture and Water Resources], Federico Cuanalo de la Serda. He added that the entrance of African bees into Mexico is imminent, inasmuch as they are already present in some Central American countries, where they have caused severe damage to agriculture. He indicated that the pest will enter the country at the northern border of Chiapas as far as the slope of the Gulf of Mexico, and later the Yucatan Peninsula. According to the official, the leader of the apiculturists asked the SARH for economic and technical assistance in order to train the apiculturists and start definite actions to combat the African bee and keep honey production from being endangered. For his part, the representative of Bancris in Chiapas, Ignacio Tinajero, said that economic assistance will be given to the apiculturists in accordance with the studies that will be made in the area and the danger that the African bee may represent. [Text] [Mexico City EXCELSIOR in Spanish 29 Oct 84 p 42-A] 9907

CSO: 5400/2008

GOVERNMENT TO USE 'JUJU' FOR FIGHTING INSECTS

Lagos DAILY TIMES in English 30 Nov 84 p 1

[Text] Traditional medicine (otherwise known as "juju") may be used in Ogun State to stop insects and other dangerous bugs from attacking crops and other agricultural products.

Governor Oladipo Diya of Ogun State, who revealed this to the DAILY TIMES in Abeokuta yesterday, said that government was consulting a man who had prepared native "juju" that had scared insects and other dangerous insects away from a farm he, the governor, had personally visited.

According to Brigadier Diya, reports reaching him proved that the native "juju" prepared by the elderly man was effective.

An expatriate in charge of the farm where the native "juju" was tested had also testified to its effectiveness, he said.

Still confirming his belief in the local "juju" Brigadier Diya said: "This has been tested in the presence of people. I have asked questions and people have told me that the medicine was responsible."

The governor said that he had asked the Commissioner for Agriculture to invite the elderly "juju" man for more discussions on the subject.

Such discussions, the governor told the DAILY TIMES, might provoke some other ideas that could assist government efforts to boost food production and vital agricultural products in the state.

Brigadier Diya was of the opinion that such adventure could complement government's efforts to boost agricultural production.

What was left after such a thing had been detected, the governor said, was for our scientists to research into and develop it.

CSO: 5400/26

BRIEFS

INFESTATION LOWERS COTTON PRODUCTION--More than 100,000 hectares of cotton are no longer cultivated because of the Indian pink worm, a pest which has caused incalculable losses to northern farmers. This was revealed yesterday by Senator Orlando Balarezo Calle, a member of the Agriculture Commission of the senate. After pointing out that only 20,000 hectares of cotton were under cultivation, which he called the smallest amount of land used for this crop in the history of the area, the populist representative warned that if the necessary measures are not adopted by the Ministry of Agriculture in collaboration with the farmers, the infestation may move into the cotton-raising valleys of the southern part of the country. Showing the reporters some pink worms brought from Piura, Balarezo Calle said that this is the first time that this infestation has appeared in the northern part of the country. This pest is considered to be one of the most voracious and harmful of all those known to date. Balarezo Calle indicated that it is necessary for the state to be aware of the seriousness of this infestation and also for farmers to express their concern. He said that they will propose that special funds of the Agrarian Bank be granted, to allow the worm to be controlled and a normal crop to be obtained next year. /Excerpt/
Lima EL COMERCIO in Spanish 21 Nov 84 p A-4/ 12467

CSO: 5400/2013

BRIEFS

INSECT EXTERMINATION URGED--According to an announcement by the department of Plant Protection of the Ministry of Agriculture, the stem-borer butterflies are at present swarming, reaching a few ten thousand for each light in the night, an increase of 8-10 times the peak number in 1983. These butterflies continue to infest areas of main rice crops and late rice crops. Caterpillars will cause great damage to the planted rice that is heading from September 25 to October 10 and, if measures are not taken against infestation, rice production will be badly hurt. In the past, thanks to rainfall and the coordinated efforts of localities to exterminate harmful insects, damages per area have been somewhat reduced. However, measures are not yet standardized and not quite effective so that infested areas remain large. The localities continue to catch butterflies and pluck egg nests to exterminate butterflies. They are also using pesticides to destroy caterpillars while protecting rice against brown planthoppers, army worms and leaf rollers. [Text] [Hanoi NHAN DAN in Vietnamese 27 Sep 84 p 4] 12745

EFFECTIVE INSECT EXTERMINATION--Harmful insects are multiplying and infesting the fields of many agricultural cooperatives around Hanoi. The fight to protect rice against insect infestation is conducted in a critical context as the stations in charge of plant protection did not forecast the danger in time. The supply of technical agricultural materials is insufficient and inappropriate. The activities of units specialized in plant protection are weak. At some places pesticides are not used properly. The supply of pesticides is not administered tightly; the formula for pesticides preparation as well as methods for using them are not disseminated widely. It is necessary to change the plant protection system, taking the district as the primary level. It is wrong to conceive the task of plant protection stations as solely one of forecasting the period of insect infestation. They are essentially in charge of continuous research to improve plant breeding and the use of seeds for each crop; the improvement of the fields in a planned manner is also aimed at eliminating insect infestation. The plant protection unit of each cooperative should serve as a base to communicate and disseminate information related to insect infestation, to receive and distribute materials, to expand forces responsible for insect extermination, and get rid of intermediary factors. Particular attention should be paid to the prevention and elimination of insect infestation, to scientific synthetic planting, to ecosystem balance and to the fight against environmental pollution. Efforts should be devoted to coordinating the elimination of harmful insects through edge digging, grass cutting, butterfly trapping, and pesticide spraying with the attempt to use red-eyed bees for large-scale insect extermination. [Text] [Hanoi NHAN DAN in Vietnamese 28 Sep 84 p 2] 12745

CSO: 5400/4317

115

TSETSE FLIES RETARD AGRICULTURAL DEVELOPMENT

Lusaka ZAMBIA DAILY MAIL in English 13 Dec 84 p 5

[Text] AGRICULTURAL development in Lusaka Province has greatly been retarded by the spread of tsetse flies into the region.

In many areas where oxen could previously be used in agriculture, this is no longer possible because often this will require costly vaccinations against tse-tse flies.

This is contained in a "blueprint for agricultural development" presented to a seminar seeking information on the potentials and problems of agricultural development in the province at the National Council for Scientific Research (NCSR).

Since 1972, about 150,000 hectares of arable land in the valleys and on the plateau have been infested, affecting about 30,000 head of cattle, half of the cattle population in the province.

"The provincial department for tse-tse control is today fighting a losing battle against the spread of the fly.

"Tse-tse barriers and game fences are maintained as far as the meagre resources allow, but the fly has since long passed these barriers and established permanent populations in previously tsetse-free zones.

"If the fly is allowed to spread further, high-breed beef and dairy cattle on State farms will be in serious danger," the report says.

The report has been prepared by the Provincial Planning Unit which falls under the Office of Member of the Central Committee for the province, Mr Fines Bula-wayo.

Meanwhile, deforestation is ranking highest in Lusaka Province where it is estimated that the city is consuming about 78,000 tonnes of natural woodlands.

The report says forests 150 km away from the city are being exploited and that this was contributing to the soil erosion in the province.